TUSKEGEE UNIVERSITY

2013-2014

CATALOG

THE TUSKEGEE UNIVERSITY BULLETIN
COURSES AND PROGRAMS
2013-2014

The Tuskegee University Bulletin is the official announcement of programs, degree requirements and many regulations of the University.

Tuskegee University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097: Telephone Number: 404-679-4501) to award doctoral, professional, master's and bachelor's degrees.

April 2013

PREFACE

The Tuskegee University Bulletin of Courses and Programs is designed to provide information about the University and its academic programs. The Bulletin contains requirements for degrees, and course descriptions for undergraduate, graduate and professional programs. The statements in this bulletin are for informational purposes only and should not be construed as the basis of a contract between a student and Tuskegee University.

There are other key brochures and handbooks that students should read and follow their directions. The following documents are available: *Tuskegee University Academic Regulations and Procedures for Undergraduates, Academic Regulations and Procedures for Graduate Students(Graduate Handbook),University Calendar, Student Handbook and Systems of Judiciaries, Schedule of Courses,* Tuition and Fees brochure, and policies governing financial aid.

Programs offered in Teacher Education, Engineering, Architecture, Nursing, Allied Health and Veterinary Medicine have supplemental regulations which are not outlined in this bulletin. Students in these programs must comply also with the regulations in these areas. They will need to go to the appropriate dean's office to receive a copy of the additional regulations and procedures.

Tuskegee University is committed to equal opportunity in employment and education and does not discriminate on the basis of sex, race, color, religion, national origin, and qualified disabled persons. Additionally, the University does not tolerate Sexual Harassment. The Affirmative Action/EEO Coordinator is located in Kresge Center.

Weapons and guns of any kind are prohibited on University properties.

Smoking in University facilities and vehicles is prohibited.

Tuskegee University, in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, shall provide reasonable accommodations for students with documented disabilities. Additional information is available in the Office of Student Support Services which is located in the Old Administration Building.

The University reserves the right to cancel classes and delete programs and change any provisions, course offerings, or other requirements, including fees, at anytime with or without notice. The University further reserves the right to require a student to withdraw at anytime under appropriate procedures.

Any admittance of a student on the basis of false statements or documents is void when fraud is discovered, and the student is not entitled to any credit for work which he/she may have done at the University, and no refund of monies paid will be made. Also, there will be no refund of tuition, fees, charges, or any other payment made to the University in the event the operation of the University is suspended at any time as a result of an act of God, strike, riot, disruption, or for any reasons beyond the control of the University.

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DDS., Meharry Medical College, D.P. H., Harvard University School of Public Health, MPH, Harvard University School of Public Health, M. Div,. Interdenominational Center.

TUSKEGEE PROFILE

Tuskegee University is an independent and state-related institution of higher education. Its programs serve a student body that is coeducational as well as racially, ethnically and religiously diverse. With a strong orientation toward disciplines which highlight the relationship between education and workforce preparation in the sciences, professions and technical areas, Tuskegee University also emphasizes the importance of the liberal arts as a foundation for successful careers in all areas. Accordingly, all academic majors stress the mastery of a required core of liberal arts courses.

Tuskegee University is located in Tuskegee, Alabama, which is 40 miles east of the Alabama State Capitol in Montgomery and is within easy driving distance to the cities of Birmingham, Alabama and Atlanta, Georgia.

The academic programs are organized into five Colleges and two Schools: (1) The College of Agriculture, Environment and Nutrition Sciences; (2) The Brimmer College of Business and Information Science; (3) The College of Engineering; (4) The College of Arts and Sciences; (5) The College of Veterinary Medicine, Nursing and Allied Health; (6), The Taylor School of Architecture and Construction Science; and (7) The School of Education. The curricula for the six academic units currently offer 49 degrees including 35 Bachelor's, 11 Master's, a Doctor of Philosophy in Engineering and Materials Science, Doctor of Philosophy in Integrative Biosciences and the Doctor of Veterinary Medicine.

Graduate instruction leading to the Master's Degree and Doctor of Philosophy Degree is offered in three of the five colleges.

The University is accredited by the Southern Association of Colleges and Schools; and the following programs are accredited by national agencies: Architecture, Business, Education, Engineering, Clinical Laboratory Science, Nursing, Occupational Therapy, Social Work, and Veterinary Medicine. Of special note is the fact that Tuskegee University is the only private, historically black university with four engineering programs that are nationally accredited by the Accreditation Board of Engineering and Technology (ABET), the major accrediting body for the engineering sciences. Also, Tuskegee University's chemistry program is one of only a few among Historically Black Colleges and Universities that is approved by the American Chemical Society. Furthermore, the Dietetics Program is approved by the American Dietetic Association and the Food Science Program is approved by the Institute of Food Technologists.

Tuskegee University was the first black college to be designated as a Registered National Historic Landmark (April 2, 1966), and the only black college to be designated a National Historic Site (October 26, 1974), a district administered by the National Park Service of the U. S. Department of Interior.

Special features in Tuskegee University's program include: The George Washington Carver Museum (named for the distinguished scientist who worked at Tuskegee) which preserves the tools and handiwork of Dr. Carver; the Tuskegee Archives, a chief center for information on the challenges, culture and history of Black Americans since 1896; The Reserve Officers Training Corps Center, and the Center for Continuing Education--a nucleus for continuing adult education.

Other special features which enhance the educational and cultural environment of the University include: The Booker T. Washington Monument, "Lifting the Veil", which honors the University's Founder; The Tuskegee Airmen's Plaza, commemorating the historic feats of America's first black pilots who were trained at Tuskegee University; The General Daniel "Chappie" James Center for Aerospace Science and Health Education, honoring America's first

black four-star general who was a Tuskegee University graduate; Media Center, School of Veterinary Medicine, with the state-of-the-art video up-link and down-link, intra-school communications, audio/visual, graphics, photography and document production; The Kellogg Executive Conference Center, a state-of-the-art hotel and meeting facility for educational, business and cultural events; The Tuskegee University National Center for Bioethics in Research and Health Care.

Over the past 130 years since it was founded by Booker T. Washington in 1881, Tuskegee University has become one of our nation's most outstanding institutions of higher learning. While it focuses on helping to develop human resources primarily within the African American community, it is open to all. Tuskegee's mission has always been service to people, not education for its own sake. Stressing the need to educate the whole person, that is, the hand and the heart as well as the mind, Dr. Washington's school was soon acclaimed--first by Alabama and then by the nation for the soundness and vigor of its educational programs and principles. This solid strength has continued through subsequent administrations of the late Drs. Robert Russa Moton (1915-1935), Frederick D. Patterson (1935-1953) and the late Luther H. Foster (1953-1981). This vitality was amplified and new luster added during the administration of Dr. Benjamin Franklin Payton(1981-2010), who assumed responsibility as fifth president of the University on August 1, 1981. It is that current administration which redefined and upgraded Tuskegee from Institute to University status in 1985. The sixth President, Gilbert L, Rochon commenced his tenure in November, 2010.

Tuskegee enrolls more than 3000 students and employs approximately 900 faculty and support personnel. Physical facilities, include more than 5,000 acres of forestry and campus on which sit more than 100 major buildings and structure. Total land, forestry and facilities are valued in excess of $500 million.

HISTORICAL SKETCH

In 1880, a bill, which included a yearly appropriation of $2,000, was passed by the Alabama State Legislature to establish a school for blacks in Macon County. This action was generated by two men-Lewis Adams, a former slave, and George W. Campbell, a former slave owner-who saw the need for the education of black people in this rural Alabama locale.

This bill was signed by Governor Rufus Willis Cobb, and became law on February 12, 1881, thus establishing Tuskegee Normal School for the training of Black teachers. Further, a three-man commission was established to serve as the governing board for the school, and was authorized to recruit and hire a teacher. After considerable recruiting efforts, the commissioners employed Booker T. Washington, who opened the school on July 4, 1881; thus, Tuskegee University was born. Thirty men and women from Macon and neighboring counties gathered the first day to attend Alabama's most distinctive normal school for the training of black teachers.

In 1882, Dr. Washington contracted to buy a 100 acre abandoned plantation, which became the nucleus of Tuskegee's present campus. He began a program of self help which permitted students to live on the campus and earn all or part of their expenses by helping to construct the campus, including making their own brick.

Dr. Washington soon envisioned the development of a greater institution with a diversity of program offerings. However, he also realized that such growth and development could not be nurtured by state funding alone, and that financial support from beyond state borders would be essential to fulfilling his dreams. As a result, the Alabama Legislature, by Act No. 71 passed in

1892, reconstituted and established Tuskegee Normal Institute as a public body and corporation of the State of Alabama with full power of action and authority vested in a board of trustees. Henceforth, Tuskegee could assume the characteristics of a private institution for developmental reasons while continuing partially as a state supported institution.

Dr. Washington died November 14, 1915, at Tuskegee, and was buried on the campus near the Chapel. At the time of his death, the foundation had been laid for a strong Tuskegee Institute. Its endowment amounted to approximately $2 million and its students numbered 1500.
Tuskegee was founded as Tuskegee Normal in 1881, redesignated Tuskegee Normal and Industrial Institute in 1893, changed to Tuskegee Institute in 1937 and renamed Tuskegee University in 1985.
Tuskegee's enrollment includes students who represent most states and a number of foreign countries.

INSTITUTIONAL MISSION AND PURPOSE

Tuskegee University is a national, independent, and coeducational institution of higher learning that has a historically unique relationship with the State of Alabama. The University has distinctive strengths in the sciences, architecture, business, engineering, health and other professions, all structured on solid foundations in the liberal arts. In addition, the University's programs focus on nurturing the development of high-order intellectual and moral qualities among students and stresses the connection between education and the leadership Americans need for highly trained leaders in general, especially for the work force of the 21st Century and beyond. The results we seek are students whose technical, scientific and professional qualities have not been not only rigorously honed, but also sensitively orientated in ways that make the public-spirited graduates who are both competent and have a strong commitment to public service and to excellence.

The University is rooted in a history of successfully educating Black Americans to understand themselves against the background of their total heritage and the promise of their individual and collective future. The most important of the people we serve are our students. Our overall purpose is to nurture and challenge them to grow to their fullest potential. Serving their needs is the principal reason for our existence. And a major outcome we seek is to prepare them to play effective professional and leadership roles in society and to become productive citizens in the national and world community. Tuskegee University continues to be dedicated to these broad aims.

Over the past century, various social and historical changes have transformed this institution into a comprehensive and diverse place of learning whose fundamental purpose is to develop leadership, knowledge, and service for a global society. Committed deeply to academic excellence, the University admits highly talented students and challenges them to reach their highest potential. The University also believes strongly in equality of opportunity and recognizes that exquisite talent is often hidden in students whose finest development requires unusual educational, personal and financial reinforcement. The University actively invites a diversity of talented students, staff, and faculty from all racial, religious and ethnic backgrounds to participate in this educational enterprise.

SPECIAL ELEMENTS OF THE UNIVERSITY'S MISSION

Instruction:

- We focus on education as a continuing process and lifelong endeavor for all people.
- We provide a high quality core experience in the liberal arts.
- We develop superior technical, scientific, and professional education with a career orientation.
- We stress the relationship between education and employment, between what students learn and the changing needs of a global workforce.

Research:

- We preserve, refine, and develop further the bodies of knowledge already discovered.
- We discover new knowledge for the continued growth of individuals and society and for the enrichment of the University's instructional and service programs.
- We develop applications of knowledge to help resolve problems of modern society.

Service:

- We serve the global society as well as the regional and campus community and beyond through the development of outreach programs that are compatible with the University's educational mission, that improve understanding of community problems, and help develop relevant alternative solutions.
- We engage in outreach activities to assist in the development of communities as learning societies.

LAND GRANT MISSION

The above three elements of mission, together with certain acts of the United States Congress and the State of Alabama, define Tuskegee University as a land grant institution. Originally focused primarily in agriculture, the University's land-grant function currently is a generic one that embraces a wide spectrum of liberal arts, scientific, technical, and professional programs.

UNDERGRADUATE PROGRAM

A strong liberal arts program with a general education curriculum is provided for all undergraduate students, enabling them to prepare for the mastery of the humanities, the behavioral science, the life and physical sciences, technical and professional major areas. The more specific aims of the undergraduate program are to:

- present the process of education as a lifelong enterprise and the development of lifelong learning capabilities whose purpose is the improvement of self and society;
- insure that students have a strong grasp of the higher order skills of problem solving, critical thinking, analysis and synthesis, as well as of creative and expressive abilities, including mathematics and written and oral language usage;
- deepen students' knowledge of history and the cultural heritage and our global connectedness;

- strengthen students sense of civic and social responsibilities;
- help students understand and appreciate the importance of moral and spiritual values to enable them not only to pursue careers successfully, but to lead lives that are personally satisfying, socially responsible, and spiritually mature and enriched;
- equip students with excellent research interests and capabilities, effective communication and analytical skills and strong commitments to the professions and to the broad and ever-changing leadership and workforce needs of our society and the world.

GRADUATE AND PROFESSIONAL PROGRAMS

The University provides graduate level instruction as well as research and training in post baccalaureate professional fields. These programs seek to develop in students the ability to engage in independent and scholarly inquiry, a mastery of certain professional disciplines, a capacity to make original contributions to various bodies of knowledge, and the commitment and competencies to teach others. Graduate degrees are offered only in selected fields of University strength and opportunity.

SUMMARY

Tuskegee University accomplishes its central purpose of developing leadership, knowledge, and service through its undergraduate, graduate, professional, research and outreach programs. Through these programs, students are encouraged not only to pursue careers but to be of service to society and to remain active lifetime learners. The University seeks to instill a robust thirst for knowledge and a vibrant quest for wholesome patterns of personal and social ethics that have philosophical and spiritual depth. In the process, it seeks to help each student develop an appreciation for the finer traits of human personality, the beauty of the earth and the universe, and a personal commitment to the improvement of the human condition.

INSTITUTIONAL CORE VALUES

The mission statement of Tuskegee University explicitly identifies intellectual, cognitive, affective, and moral dimensions of learning which we regard as essential to the fullest development of contemporary students. These aspects of our students' education also reflect, however, implicit core values which have emerged out of historical developments at Tuskegee and which are a part of its heritage. More than a gloss on "mission", the following statements of "Institutional Core Values" describe a consonance we aspire to achieve between explicit and contemporary, and implicit and historical values-all of which define the unique institutional "Character" of Tuskegee University.

We believe in Tuskegee University as a community which fosters among its members:

- Personal qualities of honesty, self-reliance, hard work, courage, prudence, abstinence from harmful drugs or alcoholic abuse, tenacity, self respect, thrift and the habit of saving for future needs;
- Societal values of equality, human dignity and of service and responsibility to others; understanding and acceptance of human diversity in all its wholesome aspects; mutual respect and trust; concern and care for others; teamwork and collaboration, and the

entrepreneurial spirit of reasonable risk-taking and investing with integrity to build economic security for self and for society.

- Intellectual and moral attributes of curiosity and creativity; objectivity, openness and rigor in scholarly inquiry; integrity and truthfulness; an excellence of mind and personal character; love of knowledge and of learning.
- Individual and collective initiative and enterprise; innovations in response to changing circumstances and opportunities.
- Faith in God, appreciation of our African-American heritage and traditions of the wider cultural legacy of all humankind, love of our country--America--imperfect though it is; belief in human equality, including the equality and the potential of Black people everywhere; confidence in the power of human vision and aspiration, sustained and nourished by Divine inspiration as interpreted by the our own religious traditions Judeo-Christian faith and respect for the great classical religions of the world as well as each individual's right to hold his/her own unique religious vision.
- A commitment to making these visions, virtues and values the fundamental and pervasive reality in all aspects of the daily relationships among students, faculty, staff and other constituencies of our Tuskegee University Community.

GENERAL INFORMATION

ORGANIZATION AND PLAN OF INSTRUCTION

Undergraduate instruction at Tuskegee University is organized under five Colleges and one school: Agricultural, Environmental and Natural Sciences; Business and Information Science; Engineering and Physical Sciences; Liberal Arts and Education; Veterinary Medicine, Nursing and Allied Health; and The Taylor School of Architecture. Courses are offered leading to the degrees of Bachelor of Science and Bachelor of Arts. Each area is supervised by a dean.

Graduate instruction leading to the Doctor of Veterinary Medicine Degree, Master's Degree, and Doctor of Philosophy Degree is offered in selected programs in three of the five Colleges. A Dean of Graduate Programs works closely with the Deans of the Colleges and graduate faculty members to ensure that students are properly guided in their areas of study and research.

Instruction is offered in each major through two semesters of approximately fifteen weeks each. Opportunities for summer study are provided through an eight-week term where a considerable number of courses are offered from most curricula.

UNDERGRADUATE INSTRUCTION

Major instructional areas for undergraduate instruction are shown below with the designation of degrees obtainable in each.

College of Agriculture, Environment, and Nutrition Sciences

Bachelor of Science Majors:

Animal, Poultry and Veterinary Sciences
- Options: Business
  - Science
  - Veterinary Science
  - Wildlife

Biology
- Options: Pre-Health Professions
  - Marine Biology

Chemistry
- Options: Biochemistry
  - Environmental Science
  - Materials Science

Environmental, Natural Resource and Plant Sciences
- Options: Environmental Natural Resource and Plant Science
  - Science
  - Natural Resource
  - Environmental Services
- Plant and Soil Sciences
  - Science
  - Horticulture
  - Business
- Forest and Natural Resources
  - Forestry
  - Fisheries
  - Wildlife
  - Ecology

Food and Nutritional Sciences
- Options: Food Science
  - Nutritional Science
  - Didactic Program in Dietetics (Plan V)
  - Public Health Nutrition
  - Food Science/Biology
  - Nutritional Science/Biology

College of Business and Information Science

Bachelor of Science Majors:

Accounting
Business Administration
Economics

Finance
Hospitality Management
Management Science
Sales and Marketing
Computer Science
Option: Information Systems
Supply Chain Management
Information Technology

College of Engineering

Bachelor of Science

Majors:

Aerospace Science Engineering
Chemical Engineering:
Option: Environmental Engineering
Construction Science and Management
Electrical Engineering
Options: Analog-Digital Circuits
Systems/Communications
Energy Conversion/Electromagnetic Fields
Mechanical Engineering
Physics

School of Architecture and Construction Science

Bachelor of Architecture

Major:
Architecture

Bachelor of Science

Major:
Construction Science Management

College of Arts and Sciences

Bachelor of Arts

Liberal Arts Majors:

English
History

Mathematics
Political Science
Psychology
Social Work
Sociology

School of Education Majors:

Elementary Education
English Language Arts Education
General Science Education
Mathematics Education
Physical Education

Non-Major Programs:

Air Force ROTC
Army ROTC
Art
Foreign Language
Music
Philosophy

College of Veterinary Medicine, Nursing and Allied Health

Bachelor of Science

Majors:

Clinical Laboratory Science
Nursing

GRADUATE INSTRUCTION

Graduate instruction at Tuskegee provides an opportunity for students of demonstrated intellect and who have the desire and capacity of investigation to develop the ability to do independent and scholarly work which will improve professional performance as well as make original contributions to knowledge.

The general policies of graduate instruction are formulated by the Educational Policies Committee. The committee is composed of representatives of the colleges in which graduate programs are offered. Specific direction for graduate instruction is vested in each college, consistent with the policies of the Graduate Faculty. Further information regarding graduate offerings may be obtained by writing to the Office of the Dean of Graduate Programs, or to the Dean of each graduate degree granting area.

Three degrees are offered-Master of Science, Doctor of Veterinary Medicine and Doctor of Philosophy. Courses of study leading to these degrees are listed as follows:

College of Agriculture, Environment and Nutrition Sciences

Master of Science

Agricultural and Resource Economics
Animal and Poultry Sciences
Biology
Chemistry
Environmental Sciences
Food and Nutritional Sciences
(Food Science or Nutritional Science emphasis)
Plant and Soil Sciences

Doctor of Philosophy

Integrative Biosciences

College of Engineering

Master of Science

Electrical Engineering
Mechanical Engineering

Doctor of Philosophy

Materials Science and Engineering

College of Veterinary Medicine, Nursing and Allied Health

Doctor of Veterinary Medicine (Professional Degree)

Master of Science

Occupational Therapy
Public Health
Tropical Animal Health
Veterinary Science

Doctor of Philosophy

Integrative Biosciences

THE SUMMER SESSION

The Tuskegee University Summer Session is organized to meet the needs of undergraduate and graduate students. The Session also provides programs for principals, supervisors, elementary and high school teachers as well as programs for high school students and workshops for continuing education.

The work offered during the eight-week summer session is specifically chosen to meet the needs of those who wish to obtain, renew, or extend certificates, or to pursue work leading to the Bachelor's, Master's or Doctoral degrees.

SHORT COURSES

Short courses for one, two, and three hours credit can be offered by any academic area. At times, these are referred to as post-sessions, inter-session, or mini-courses. Academic standards for such courses are comparable with standards in regular classes and require comparable achievement. Short courses may be offered between sessions, or during regular sessions at hours to be determined by the academic area involved. All short courses must be approved by the Provost. Class periods for such courses are usually longer than those for regular scheduled courses.

SPECIAL COMPONENTS

THE CARVER RESEARCH FOUNDATION

The Carver Research Foundation of Tuskegee University was incorporated by Dr. George Washington Carver and his associates in 1940. The initial funds of incorporation were the personal savings of Dr. Carver, a total amount in excess of $60,000. Since that time it has carried out the general wishes and objectives of the founder: to advance knowledge through research in agriculture, the natural sciences and related areas as well as other pure and applied sciences.

THE GEORGE WASHINGTON CARVER AGRICULTURAL EXPERIMENT STATION

The search for new knowledge at Tuskegee University began very soon after its inception. In the early 1890's, Booker T. Washington, with the help of local and state governments, put together a plan to make research at Tuskegee University a reality. The result of the plan was legislation passed by the Alabama State Legislature on February 15, 1897, to establish the Tuskegee State Experiment Station on the campus.

George Washington Carver became the first director of the Tuskegee Experiment Station. He held this position from 1897 until 1943. During his tenure, his work in chemistry and applied research established for him, and for Tuskegee University, international fame and recognition as a major contribution to the growth and development of the nation.

Agricultural research continues to be a major endeavor at Tuskegee University. It has been greatly expanded in both programs and in personnel. Since the time of Carver, Tuskegee University has received significant financial support annually for research from the United States Government by way of Public Laws 89-106 (1972-1977) and 95-113 (1978-present), administered nationally by the Cooperative State Research Service of the U.S. Department of

Agriculture.

In addition to the search for new knowledge, significant benefits of the experiment station and its programs include support for scientists, training of students at the graduate level, and opportunities for exposure of undergraduate students to invaluable learning experiences which would not be available otherwise.

THE TUSKEGEE UNIVERSITY CENTER FOR CONTINUING EDUCATION

Service through Extension and Continuing Education ranks with instruction and research as a critical element of the overall mission of Tuskegee University. The Tuskegee University Kellogg Executive Conference Center, which opened in 1994, provides the University with a facility focused on Continuing Education. This Conference Center enables the University to provide new programs using modern computer and multimedia technologies to take advantage of new instructional approaches and methodologies including distance learning. The Tuskegee University Kellogg Conference Center serves as the hub of an expanded educational outreach network that initiates, co-sponsors or hosts on-and off-campus programs. These programs focus on the individual family and community needs of the 12 Black Belt counties in Alabama.

The major areas of Continuing Education include:

- lifelong learning skills for undergraduate students
- prevocational adult education
- rural families in transition
- leadership and professional education and preventive health measures and physical fitness

THE TUSKEGEE UNIVERSITY KELLOGG CONFERENCE CENTER

The Tuskegee University Kellogg Conference Center was funded primarily by the W. K. Kellogg Foundation and it consists of:

- Seventeen thousand square feet of meeting space with a ballroom capable of seating 500 at a sit-down dinner and a 350 seat auditorium.
- Ten additional meeting rooms with removable air-walls and a dedicated facility for teleconferencing.
- A full service audio-visual media center with satellite broadcasting and receiving capabilities, production studio with sound stage, all interfaced and interconnected with Tuskegee University computers and campus communications.

The Center houses the Hospitality Management Program and it serves as the primary laboratory for the program.

THE COOPERATIVE EXTENSION PROGRAM

The concept of University Extension, at Tuskegee University, evolved out of the very founding activities of this institution when Booker T. Washington, upon arrival in 1881, moved into the neighboring communities to gather information on the needs of the people as a prerequisite to the formulation of the Tuskegee program of study.

Subsequently, the extension program became the functional mechanism through which the institutional resources including professional, scientific, and technological, were made available beyond the campus borders.

Following the passage of the Smith Lever Act of 1914, the concept of Cooperative Extension brought together state, federal, and private support to reach beyond the immediate area to state, national, and international communities with a central focus on reaching the unreached and extending the University's knowledge base to the people and black belt counties of Alabama.

The programs are implemented through local county agents. Areas of concentration include: family and youth development, leadership and volunteer development, agriculture, forestry environmental quality and natural resources, nutrition, food and health, rural and community economic development.

THE TUSKEGEE UNIVERSITY LIBRARIES

Tuskegee University Libraries consist of the main library and departmental libraries in the College of Veterinary Medicine, Nursing and Allied Health and the College of Engineering, Architecture and Physical Sciences. The main library, built in 1932, is a fireproof, three-story structure named in honor of the late Hollis Burke Frissell, second principal of Hampton Institute. In 2001, the building was renovated to reflect technological advances and the name was changed to the Ford Motor Company Library/Learning Resource Center. The building now includes two state-of-the-art computer laboratories: one which serves the bibliographic instruction and training needs of faculty, staff and students; the other laboratory offers 42 workstations for general student access. Also included are a mini-computer-lab, study rooms, study carrels, and a viewing room equipped with DVD/VCRs, scanners and printers. Throughout the library, patrons using laptops equipped with wireless Ethernet cards can access the Internet using the wireless networking capability.

Tuskegee University Libraries serve as the nucleus of information retrieval for faculty, staff, and students. The mission is to acquire, organize, and provide access to materials and technologies needed for educational programs of the University in teaching, research, and service. The collection in all libraries is comprised of approximately 310,000 volumes, including bound journals; current serial subscriptions total more than 1,500.

The Tuskegee University Libraries website www.tuskegee.edu/libraries provides access to the library's holdings, Internet and the numerous general and subject databases subscribed to by the library.

The Sirsi/Dynix Unicorn System serves as the library's management system. Among the unique features of the Unicorn system is the ability to check account status, renew books online and make online requests.

The Washington/Rare Book Rooms house a collection of primary and secondary resources of black materials. These include a sizable collection of abolitionist literature, publications by and about the Presidents of Tuskegee University and George Washington Carver. An extensive collection of pamphlets dealing with racial issues can also be found in the collection.

The library has been a federal depository since 1907 and has a collection of more than 40,000 select government documents.

THE OFFICE OF INTERNATIONAL PROGRAMS

Tuskegee University's historic involvement in international programs dates from 1899, when a team of agricultural experts was sent from Tuskegee to improve cotton production in the former German African colony of Togoland.

Through the years, various academic units developed and administered educational, technical and research projects resulting in long-standing ties being established in Africa, the Caribbean, the Middle East and Asia. But today, the Office of International Programs (OIP) serves as the central unit responsible for coordinating all international ventures which include international research for development; technical assistance in overseas projects, long-term degree and short-term non-degree training; and development of linkages with developing country institutions of higher learning and research.

The office is headed by the Director of International Programs, supported by an experienced and well-traveled staff that offers both expertise and understanding in helping international students with immigration matters and environmental adaptation.

Using state-of-the-art computerization, the OIP implements and coordinates overseas projects, assists in the development of proposals; provides international travel assistance as related to projects and programs in OIP, for faculty, staff and students; hosts and participates in conferences on international development and spearheads the development of a global outlook at Tuskegee University.

International Programs address itself to certain needs and concerns of the total international student population. A primary responsibility is to render services to meet the requirements of Immigration and Naturalization Service, governmental agencies, and sponsoring agencies.

Application for Foreign Exchange:

All students requiring the institutional statement of educational expenses for Exchange Control Permit should request this form from the OIP.

Bureau of Citizenship and Immigration Services:

The Immigration Office that serves international students at Tuskegee University is located in Atlanta, GA. The mailing address and telephone number are:

United States Department of Justice
Bureau of Citizenship and Immigration Services
77 Forsyth Street, Room G85
Atlanta, GA 30303

1-800-375-5283

Important Immigration Documents:

It is important that international students become knowledgeable of documents that are essential in maintaining legal status while matriculating in the US.

Passport A travel document issued by the government of the student showing the bearer's

identity, origin and nationality. A passport should be revalidated as necessary to keep it valid at least six months beyond a person's intended stay.

Visa — A stamp placed in the passport or travel document by the U. S. Consular Office abroad showing the period of validity for staying in the U. S.

Visa Types Most Commonly Used at Tuskegee University:

F-1 Student
F-2 Spouse or child of the F-1 student
J-1 Exchange visitor
J-2 Spouse or child of the J-1 student

Form I-94 A small 3X5" white form usually stapled in the passport. It is known as the Arrival-Departure Record and provides evidence of actions by BCIS.

Form I-20 This document is to be retained by the student at all times and not surrendered upon temporary departure from the United Stated, as it will be needed for re-entry after temporary absence. It will carry an admission number which will be unique to the individual student and belong to that student permanently, and which must be recorded and maintained by schools as part of their record keeping requirements. The admission number will be the key to BCIS computerized files on the student and must be used in all communications with and transactions by BCIS.

DS/2019 Certificate of Eligibility of Exchange Visitor J-1 status form issued under an Exchange Visitors Program indicating the term of appointment, length of stay, program definition and financial arrangement. It is also necessary for temporary visits outside of the US for the J-1 student.

Form I-538 Application for nonimmigrant student (F-1) for extension of stay or permission to accept or continue employment or practical training.

Form 1-102 Application for replacement of lost 1-94.

Form 1-539 Application for change of nonimmigrant status and for extension of stay.

Form 1-34 Affidavit of support.

Students should confer with the International Student Advisor for information regarding securing and/or completion of the above form.

Social Security Card

Each student is encouraged to secure a social security card as needed for business purposes. Requests for cards are made at the Gomillion Community Development Service Center, South Main Street in the City of Tuskegee on the third Tuesday of each month from 9:00 a.m. –

12:00 noon.

All students must take along the passport with the Form 1-94 attached. In addition, J-1 students should have the DS/2019 form and F-1 students should have the I-20 form with them.

Maintenance of Status

Students must maintain a full-time program of study. On the undergraduate level, twelve credit hours per term or its equivalent as defined by the district director, or whatever lesser number of credit hours might be necessary on the student's final term in a program of study. On the graduate level, the must meet the requirement as defined by the university and defined by the school officials.

OFFICE OF ADMISSIONS

The Office of Admissions is responsible for the identification, recruitment, admission and matriculation of all new students. Its outreach, education and marketing efforts seek to ensure that all potential Tuskegee University students know how the University can contribute to successful academic outcomes for them.

Tuskegee University Admissions Requirements and Application Procedures

The admissions process at Tuskegee is a matter of ongoing communication between the University and the student. This two-way process allows the University to identify every potential student that can be successful in our programs. Each applicant is evaluated individually. This is done so that other factors can be used as criteria for the admissions process. Being flexible and comprehensive in our evaluation ensures the admission of students who can take full advantage of the Tuskegee experience while enriching the campus community.

How to Apply

Undergraduate Students who wish to apply to Tuskegee University must submit a completed application with a $25 (non-refundable) application fee to:

Office of Admissions
Margaret Murray Washington Hall
Tuskegee University
Tuskegee, AL 36088

Graduate and Professional students should make inquiry and application to the respective colleges offering the degree program of interest.

When to Apply

The priority filing period for fall applications is December 1. For Spring admission, the priority filing period is October 15; Summer School March 31. Applications will be considered until four weeks prior to the registration period for any semester.

New students may enter at the beginning of any semester, except students interested in Veterinary Medicine, Nursing and Allied Health. These programs admit students for the Fall Semester only.

Early Admission Program

Promising high school students with a high school GPA of 3.5 and a combined SAT score of 1000 or above or comparable ACT scores, may be considered for early admission. Students must complete the application process and include a recommendation from the principal of their high school. They must also send a letter indicating parental approval of their early admission.

International students applying to Tuskegee University must follow the application procedures previously indicated. However, there are additional requirements and procedures that must be adhered to. These additional requirements are included on the International Students Application.

The test of English (TOEFL) is required of all international students whose native language is not English. It is strongly recommended that the TOEFL be taken on a date when the Test of Written English (TWE) is being administered as part of the test. A $35.00 (non-refundable) application fee is required.

Students must provide evidence of health insurance prior to admission as well as an official report of their health status.

Non-degree Options

Transient Student - A status given students who are in good standing at another college or university in a degree program of studies who desire specific courses at Tuskegee University for one semester. Students desiring transient status must complete an application and a letter of intent. No transcript or other credentials are required. Transient students are not eligible for financial aid.

Unclassified Student - A status for students who select a program of study for specialized training or some particular upgrading or vocation. Students desiring an unclassified status must submit an application and a fee of $25. No transcript or credentials are required.

ADMISSION POLICY

Admission criteria and procedures are clearly stated, published and available to enrolled and potential students. This information is also available, upon request, from the Admissions Office. In addition to the catalog, criteria are published and distributed to potential and interested persons by departmental brochures, promotional materials and in college profile materials. General admissions criteria for freshmen are as follows:

Programs/Majors	**High School Preparation Preferred**
All Programs/Majors	4 years English
Except Engineering	3 years Mathematics
and Nursing	1 year Physical Science &/or
	1 year Biological Science
	3 years Social Science

	Elective Courses to include Foreign Language and Computers
Engineering	4 years English 4 years Mathematics 1 year Physical Science 3 years Social Science 7 Elective Courses Students are encouraged to take Trigonometry, Physics, Chemistry and Computer Science
Nursing	4 years English 3 years Mathematics 1 year of Biological Science 1 year of Chemistry 1 year of Social Science 4 Elective Courses Students are encouraged to take Physiology if available. Students should take the National League of Nursing Guidance Examination.

Analysis of SAT/ACT scores and high school grade point averages over the past few years has revealed that students who enter Tuskegee University with a SAT composite score of at least 1000 or an ACT score of 24 and a high school grade point average of at least 2.50 tend to be more successful in completing their freshman level courses than those who score lower. The faculty will use SAT/ACT scores and high school grade point average to place students in appropriate freshman level courses.

OFFICE OF FINANCIAL AID SERVICES

The Financial Aid Office at Tuskegee University manages financial aid and scholarship resources from University, federal, state, county and private sources. The funds are awarded to ensure that the opportunity to attend the University is provided for eligible students. The Tuskegee University Financial Aid Program is designed to reward academic achievement and to provide financial assistance to supplement family resources. The primary responsibility for financing college expenses rests with the student and parents to the extent that the family is determined able to contribute; however, the Office of Financial Aid will do everything possible to provide financial planning assistance to Tuskegee students and their families. We believe students should select Tuskegee based upon educational considerations and not financial factors.

Tuskegee rewards academic excellence. Scholarships are awarded on the basis of academic achievement. Financial Aid is awarded on the basis of need as determined by the Free Application for Federal Student Aid (FAFSA). Financial aid is available in the form of grants, loans, work assignments, scholarships, and fellowships. Some of the financial assistance programs are made possible through resources of the University, while other programs are made possible by private and government agencies.

Students who have been admitted to Tuskegee University should write to the Office of

Financial Aid for materials and procedures regarding financial assistance. EARLY APPLICATION IS ENCOURAGED. The priority deadline date to submit the Student Aid Report to Tuskegee University is March 31 of each year.

Student Eligibility

Students who meet the following criteria may be eligible for financial aid:

1. A United States citizen or a permanent resident of the United States.
2. Admitted in an approved degree-granting program.
3. Making satisfactory progress and in good academic standing as defined by the University.
4. Enrolled at least half-time (six semester hours) in an approved degree-granting program.
5. Proof of compliance with Selective Service registration requirements.
6. Not in default on a Perkins Loan (formerly National Direct Student Loan) or Stafford Student Loan (formerly Guaranteed Student Loan).
7. Does not owe a refund on a Pell Grant or Supplemental Education Opportunity Grant.

Applicants for financial aid must have been accepted to Tuskegee University before an award can be made.

Application Procedure

Priority consideration will be given to students who have submitted all requested information by **March 31**. This information includes Student Aid Report, University Application, and the appropriate Income Tax form (1040, 1040EZ, 1040A) signed and dated. Financial aid applications are available from: Financial Aid Services, Carnegie Hall, Tuskegee University, Tuskegee, Alabama 36088.

In order to be considered for financial assistance, the student must submit the "FREE APPLICATION FOR FEDERAL STUDENTAID" (FAFSA) to the appropriate processor.

Please check forms for accuracy before mailing to the processor. When copies of the information are returned from the processor, be sure to check for accuracy. If errors are made, make the necessary corrections according to the instructions on the forms and return them to the processor, not to Tuskegee University. Errors usually result in a four to six weeks delay in processing applications at the University.

Types of Aid

Grants:

Alabama Student Assistance Grants-are awarded to bona fide Alabama residents based on financial need. The maximum award is $2500 per academic year.

Pell Grant-does not have to be repaid and the award may range from $400 to $4050 per year.

Supplemental Education Opportunity Grant-does not have to be repaid and may range from $100 to $4000 per year. This is a need-based program available only to first-time undergraduate degree students.

Work-Study

College Work-Study Program-allows both undergraduate and graduate students an opportunity to earn money for educational expenses. Students normally work 12 hours per week and receive the prevailing minimum wages per hour. Most jobs are on the Tuskegee University campus.

Loans

Federal Stafford Subsidized Loan-an interest bearing, subsidized federally-insured loan to undergraduate and graduate students. Maximum loans are: $2625-undergraduate freshmen, $3500-sophomores; $5500-upper level undergraduates; and $8500-graduate and professional. The Federal Subsidized Loan is a need-based program that requires applicants to fulfill need analysis requirements.

Perkins Loan (NDSL)-a low interest loan for undergraduate students with exceptional need. An eligible student may borrow a total of $4000 each year of undergraduate study, $6000 per year for graduate/professional, a cumulative total of $20,000 undergraduate and $40,000 for graduate study. (This total includes any amount borrowed under Perkins/NDSL for undergraduate study).

Federal Plus Loan-Parents may borrow for dependent undergraduate students. The maximum amount a parent may borrow per student is the cost of attendance less other financial aid.

Federal Unsubsidized Loans-provide maximum loans of $4000 for the first 2 years, $5000 for the remaining 2 or 3 years, independent undergraduate, graduate and professional students may borrow $18,500 per year.

Scholarships

Presidential Scholarship-are offered to students with exceptional credentials which include high school grade point average, ACT/SAT scores, and leadership skills.

Macon County Scholarship-made to bona fide Macon County residents who demonstrate exceptional financial need as determined by **Pell Grant**.

University Grants and Merit-Based Scholarship-are offered to applicants who demonstrate academic merit on high school grades and ACT/SAT scores.

Military (ROTC) Scholarship-available to students participating in the Army and Air Force College ROTC Programs. These scholarships cover tuition and fees, books and supplies, and an allowance. ROTC scholarship recipients also receive full room and board from the University. Contact the ROTC Office for further information.

Other agencies providing assistance to Tuskegee students are the Bureau of Indian Affairs and Vocational Rehabilitation.

Need-Based Scholarship-Various funds, endowment income and The United Negro College Fund are sources of scholarships based on need and academic achievement.

OFFICE OF THE REGISTRAR

The Office of the Registrar has the responsibility for maintaining official student academic records. Transcripts are released from this office by following the procedures established for requesting transcripts. The office is located on the first floor of Kresge Center and provides service on a daily basis.

TUITION AND FEES

General Statement

Tuskegee University regards the experience which a student receives in handling his financial affairs as an important educational outcome of residence at the University. All students are urged to meet this responsibility promptly or to make arrangements for payment to avoid being asked to withdraw and have registration canceled. If it becomes necessary to cancel registration, a fee of $25.00 must be paid for reinstatement within seven working days of cancellation. Payment will not be accepted after this period.

***NOTE:** Money orders, certified, travelers' and cashier's checks made payable to individual students may be cashed at the Business and Fiscal Affairs Office with proper identification.

NO PERSONAL CHECKS WILL BE CASHED.

The Business and Fiscal Affairs Office provides, without charge, a deposit service which students may use for the safekeeping of money. Cash, certified, travelers', cashier's checks, and money orders payable to the student may be placed on deposit with the Cashier in the Business and Fiscal Affairs Office and a receipt will be issued for the same. Whenever the student wishes to withdraw a portion of the funds, he/she must present a valid Tuskegee University identification card. If a balance is left, a white receipt will be issued for that amount.

Funds resulting from financial aid in excess of all charges and fees may be withdrawn by the student upon approval of Financial Aid. At no time will a student be allowed to withdraw cash on his account if there are no funds available and if there is an outstanding balance.

Veterans of the Armed Forces of the United States, who are studying under Chapter 31 of 28 U.S. Code, have their educational expenses paid to the University by the Veterans Administration. These students receive directly from the Veterans Administration, each month, a check for their living expenses. Tuskegee University does not extend credit for living expenses nor make any advances for personal expenses to veterans. These students are urged to make arrangements before coming to Tuskegee University to finance themselves for approximately three months.

Schedule of Fees

Admission Application Fee: This fee is required of each new student who applies for admission. The fee is not a deposit, nor is it refundable. The amount of the fee is $25.00.

Enrollment Deposit: In order to obtain living accommodations, and to select a course schedule, an enrollment fee of $500.00 must be received by **May 1** for the Fall Term and **December 1** for the Spring Term. **The fee should be made payable to Tuskegee University and should be sent directly to the Office of Business and Fiscal Affairs** upon receipt of acceptance. **This enrollment fee in non-refundable.** The fee will be applied to the student's expenses. This fee is subject to change.

Course and Incidental Fee: This charge, paid by the student, covers a portion of the cost of instruction. The balance of this expense is covered by gifts and grants and by income from endowments available to Tuskegee University. The fee is due at each semester registration: August and January. Students auditing courses pay the same as those taking them for credit.

Living Expenses: Services are provided on the campus for approximately 2,200 students. The University believes it highly desirable for all full-time students to live in residence halls and secure their meals in the University Cafeteria. Accordingly, **all students living in the residence halls must secure contract food service in the University Cafeteria.**

Refunds for living expenses are granted if a student withdraws from the University during the semester in accordance with the period of time spent in the residence hall.

Important Telephone Numbers

Admissions 1-800-622-6531
Bursar 334-727-8538,
Business Office 334-727-8531
Financial Aid Office- 334-727-8201
Housing 334-727-4617
Registrar 334-727-8505
Counseling Center- 334-727-8244

Library Fees: Fines for overdue books are assessed against students who do not return library books by the due date at $0.25 per day. Fines for overdue reserve library books are assessed at $0.50 per book, per library hours.

REFUNDS

All withdrawals from the University must be cleared through the Office of the Registrar. If a student withdraws during the semester, a portion of his/her fees is refunded. The policy on refunds is located in the Office of Business and Fiscal Affairs.

Students who are suspended or expelled for disciplinary reasons shall have no right to a refund of any portion of fees paid. Students withdrawing must return their identification cards to the Office of The Dean of Students and see that there are no unpaid charges on their accounts in

order that they may officially withdraw in good financial standing. In the event a student has an unpaid indebtedness to the University, any refund due will be applied thereon rather than returned to the student. If fees were paid by Federal funds, any remaining amount due will be applied against such funds. All refunds will be determined by the effective date established by the Registrar. There will be no refund of fees for a reduction in class load after the fifth week of the semester. There will be no refund of or payments made to the University in the event the operation of the University is suspended at any time as a result of any act of God, strike, riot, disruption, or for any reasons beyond the control of the University.

Student Budget

Because of the variety of courses offered at Tuskegee University and the differing financial requirements for each student, it is not possible to suggest budgets which apply generally to all students. A student, however, may estimate his/her financial requirements by selecting the appropriate items listed below:

Course and incidental fees
Living expenses Books, supplies, & special equipment
Personal expenses
Uniform (if required)
Funds for books, supplies, personal expenses, etc., should not be included in payments made to Tuskegee University.

Annually, usually by March, the fees are released in a brochure by the Vice President for Business and Fiscal Affairs, Tuskegee University, Tuskegee, AL 36088. Also, the fees are available at www.tuskegee.edu/bursar.

STUDENT SERVICES

Tuskegee University is student-centered, and therefore, students are at the heart of all operations, programs and activities. Faculty and staff are committed to making the Tuskegee University experience exciting, challenging and wholesome. Student Services complement Academic Affairs. With this in mind, the organizational structure is designed so that the chief academic officer, the Provost, also has the overall responsibility for student services. To manage the core staff and activities, a Dean of Students, works under the supervision of and closely with the Provost to insure an efficient and effective Student Services Program.

The Student Services Division at Tuskegee University directs its efforts toward promoting student academic success, student personal and professional development, and enhancing the quality of campus life. The Division develops, implements and manages programs, services and activities that ensure the development of competencies that complement the academic mission of the University. The Student Services staff is committed to personally contributing to the academic success and development of Tuskegee University students. The specific units in this division of the University are: Comprehensive Counseling Center, Judicial Affairs, Residence Life and Development, Student Support Services, Upward Bound and Talent Search, Student Health Services, and Student Life and Development.

JUDICIAL AFFAIRS

The University Judicial System (UJS) is specifically designed to serve and safeguard the vital interests of the University community, students, faculty, administration and staff, in the conduct of work, living and leisure. This system is regulated by confidentially requirements of the Family Education Rights and Privacy Act of 1974 as amended.

The Judicial Affairs Officer is the person authorized to administer the University's Judicial System. She/he may conduct, or cause to be conducted, an investigation to determine if the complaint has merit and/or if the complaint can be disposed of administratively, or by mutual consent of the parties involved on a basis acceptable to the Judicial Affairs Officer. Such administrative disposition shall be final and there shall be no subsequent proceedings.

THE UNIVERSITY COUNSELING CENTER

The University Counseling Center provides personal and educational counseling for all Tuskegee University Students. Counseling is offered in a private and confidential setting and counselors are available for individual and group counseling. Services are offered from 8:30 a.m. to 4:30 p.m. Monday through Friday. Students may walk in but appointments are encouraged. For additional information about Counseling Services, please call 334-727-8244.

Testing Service. The testing program supports the University's goal of ensuring the subject matter competence of our graduates. The testing program administers several competency examinations that are required for graduation, and manages the administration, analysis and interpretation of a variety of national, institutional and agency examinations. Students also receive pre and post examination counseling. **Freshman and Transfer Student Seminar/Orientation.** The Counseling Center, in conjunction with the Office of the Provost, is responsible for the Freshman and Transfer Student Seminar curriculum development and coordination of an orientation course required of all new and transfer students. The course has been developed to ensure the academic and personal success of new Tuskegee University students. All new and transfer students are required to earned at least a "C" grade in Orientation 100 and 101. The course is taught by a team of faculty and staff.

Veterans Affairs. The Veterans Affairs Office serves as a liaison between Veteran students enrolled at Tuskegee University and the Department of Veterans Affairs. Counseling and support services are provided to address unique characteristic needs and problems of veteran students, dependents and National Guard/Reserve members.

RESIDENCE LIFE AND DEVELOPMENT

Residence halls at Tuskegee University are more than just comfortable and safe facilities. They are living and learning centers that support the academic and professional development of students. The residence halls provide an environment and experience that promote and enhance academic success, personal development and exemplary campus citizenship. The Residence Life and Development staff ensures that the Tuskegee experience is personalized for each student. The

University requires freshman, sophomore and first-year transfer students to reside in the residence halls. Any exceptions must be requested and approved in writing prior to the first day of registration by the Housing Business Manager.

STUDENT LIFE AND DEVELOPMENT/STUDENT UNION

Student Life and Development/Student Union is the unit that provides opportunities for the total development of the student through educational, civic, cultural, social and recreational programs and activities implemented through the staff, student organizations, individuals and committees. Effort is made to have free time activity become a cooperative factor with study in education. The Union provides services, conveniences, and amenities that the college family needs; and it is a significant part of the educational program of the University.

Advisement, guidance and assistance to student organizations and individuals, in addition to seminars, workshops, dialogue sessions, theatrical productions, concerts, movies, a variety of games and the coordination of some special campus events constitute the Student Life/Student Union offerings. The following are inclusions under the auspices of Student Life and Development/Student Union:

Intramural Sports. The Intramural Sports Program provides an opportunity for all students to participate in organized athletics. The competition offers opportunities for physical, mental and social development. Involvement is commensurate with the student's ability level.

Student Government Association. The Student Government Association (SGA) serves as an intermediary between students and the university community. The SGA provides a forum for the expression of student ideas, promotes intellectual dialogue and student entertainment through lectures, concerts, talent and fashion extravaganzas, shows, parties and observance of special events. The SGA plays an important role in self-government and helping students to develop a sense of responsibility and independence.

Other Student Organizations. Student Life provides guidance and direction for more than one hundred (100) active organizations on the campus of Tuskegee University. Included are professional and vocational organizations, honor societies, general and international organizations, religious organizations, Greeks, service organizations, and city/state clubs.

Miss Tuskegee University. Miss Tuskegee University functions under the auspices of Student Life. Event coordination, advisement, travel, lodging, and other assistance are provided as needed by the staff in carrying out the specific duties and responsibilities as required by Tuskegee University.

Mr. Tuskegee University. Mr. Tuskegee University operates under the auspices of Student Life and Development. Event coordination, advisement, travel, lodging, and other assistance are provided as needed by the Student Life staff in carrying out the specific duties and responsibilities as required by Tuskegee University.

***Campus Digest*/*Tuskeana* Offices**. The *Campus Digest* and *Tuskeana* offices are monitored by the Student Life Director and staff. Guidance and advisement in the production of the school paper and the yearbook are provided through the Marketing and Communications Department.

Special Events. Student Life has the responsibility of coordinating the Annual Tuskegee University Homecoming Parade, Miss Tuskegee University (MTU) Homecoming Gala, MTU Spring Pageant, Student Leadership Retreat, and the Honda Campus All-Star Challenge Tournament.

Students Elections. The Student Life Staff provides guidance and assistance to the SGA in the coordination of campus elections to provide for proper execution of rules and procedures.

Who's Who Among Students in American Universities and Colleges.

The Department of Student Life coordinates the candidate selection process at Tuskegee University for the submission of nominees to Who's Who Among Students in American Universities and Colleges, and communicates with and submits official certificates to the nominees upon receipt from the national office. This area also does Ombudsperson screening under the direction of the University President.

TRIO PROGRAMS

Trio Programs consist of **Student Support Services, Educational Talent Search** and **Upward Bound**. The Office of Postsecondary Education administers these federally funded programs through the Division of Student Services. Their common purpose is to produce programs designed to identify first-generation or potential first-generation college students with academic promise from low-income families; to motivate personal and academic competence; and to provide special support services that will enable students to succeed in higher education. Each program has federal eligibility criteria, which must be met, in order to participate, and each offers academic, career and personal counseling.

Talent Search and **Upward Bound** are high school programs that operate in Bullock, Lee, Macon and Russell counties during the academic year.

Student Support Services- The Tuskegee University Student Support Services (SSS) program is rich in history. Started in 1970, under the leadership of Human Resources Development Center (HRDC), we were first known as *Project Pride*. Several years later, the name was changed to Special Programs. By 1985, the three major components: Upward Bound, Educational Talent Search and Special Programs were forged into what are now the TRIO Programs, Most recently, Special Services changed its name to Student Support Services for a more diverse and progressive appeal.

The Tuskegee University Student Support Services program is federally administered through the United States Department of Education. It is an academic support program designed to provide innovative curricula and services that meets the needs of students and prepare them to successfully continue and complete their college education. Professionally trained counselors are available to help SSS participants in need of academic, career, personal and financial aid counseling. Peer tutors are available in the areas of biology, chemistry, computer science, English, mathematics, reading and study skills.

Student Support Services offer assistance to 375 undergraduate students campus-wide who are enrolled and/or accepted at Tuskegee University, who are first generation college students, are from a low-income family, or have a *documented* learning and/or physical disability. The student must also be a citizen of the United States, Puerto Rico, or the U.S. Virgin Islands. Full-time, professional counselors and part-time tutors and reinforcement teachers make up Student Support Services. Student Support Services participants are usually freshmen or sophomores. All physically impaired students and eligible veterans are encouraged to participate in this program. There is no charge for participation in the Student Support Services.

Upward Bound- The purpose of the Tuskegee University's Upward Bound Program is designed to identify sixty (60) qualified youths-- forty of whom are low-income and potential first-generation students and to develop in them the skills and motivation required to complete a

program of secondary education to enter and succeed in a program of postsecondary education. Upward Bound serves Lee, Macon and Russell counties. High schools served by Upward Bound are:

Lee County:	Beauregard and Loachapoka High Schools
Macon County:	Booker T. Washington and Notasulga High Schools
Russell County:	Russell County High School

Upward Bound also provides reinforcement classes on Saturday mornings and a six-week summer campus residential program.

STUDENT HEALTH SERVICES

The Student Health Services provide optimum health care for all students enrolled at Tuskegee University through clinical, emergency medical services and health education programs.

1. **Clinical Services**: The Student Health Center is staffed by a Physician, Registered Nurses, Nursing Assistants, and Administrative Executive and Administrative Assistants. Evaluation and treatment of minor illness, (which include allergies, respiratory infections, urinary tract infections, gynecological problems and sexually transmissible diseases), and injuries are available. Referrals are made, when indicated, to local hospitals and specialists.
2. **Immunization:** Before enrollment, all students, must produce medical documentation of adequate immunization against measles and tuberculin test. Additionally, tuberculin tests are required annually.
3. **Medical Insurance:** Proof of adequate medical insurance before registration is also required. The Tuskegee University sponsored Sickness and Accident Plan (SASIP) is available for students with no family/personal insurance plan. The Tuskegee University Student Health Services is dedicated to effectively respond to the health care and health education needs of students.

STUDENT HANDBOOK

The University publishes a Student Handbook that gives more details about services. Additionally, the handbook contains the procedures of the Judicial System. Under the section on the Judicial System, the rules, regulations and codes of conduct are published. The handbook is available in the Office of the Dean of Students and Director of Student Life and Development.

CAREER DEVELOPMENT AND PLACEMENT SERVICES

The primary mission of The Career Development and Placement Services Center is to facilitate the professional and personal aspirations of students for internship, cooperative education, full-time employment or admission to graduate/professional schools. It is the responsible campus unit for teaching students self assessment and career planning skills. Services and programs provided are specifically targeted to enhance academic success correlated with on-the-job learning experiences. Among the programs and services offered are: career orientation for new students, job search workshops and clinics to include resume writing and interview

techniques, career counseling, job listings, employment trends and job market analyses, Career Resource Library, online accessibility, on campus interviews, Summer Internship Program, Cooperative Education Program, full-time employment opportunities and graduate school information.

Campus Safety and Security Division

The Campus Safety and Security Division is located on University Avenue, housed between Kresge Center and Luther Foster Hall (Engineering Building). The responsibility of the Division is to provide safety, security, fire protection and all other aspects of public safety to the campus community. In addition to the main building where the Communications Center is located, there are two Annex buildings that house Administration and the Vehicle Registration facility.

The division has jurisdiction over all campus grounds; remote research facilities; University owned housing units for off-campus students, staff and faculty. Public Safety Officers and Security Officers patrol these areas daily and respond to requests for service 24 hours a day. The officers are armed and equipped with two-way radios.

Officers of the Campus Safety and Security Division do not have police authority. They have the authority, on behalf of the University, to apprehend and turn over to the local authority, persons involved in illegal or criminal felonious acts as private citizens and agents of the University. Reports of students, staff, or faculty involved in criminal acts and/or violations of the various campus codes of conduct are referred to the appropriate General Officer for review and adjudication. They may also be criminally prosecuted through the court system.

The Campus Safety and Security Division makes available in a separate brochure the parking and traffic regulations, which may be secured at the Division Office.

UNIVERSITY CALENDAR

Annually, usually by April, the University Calendar is released by the Provost. The calendar provides detailed dates that govern the academic program. The calendar is available in key offices, particularly the Offices of the Registrar and Provost. Additionally, the calendar is posted on the University website and may be accessed through www.tuskegee.edu.

Below are the abbreviated calendars for the Second Semester and Summer of the school year 2010-2011, and the school year 2011-2012. Calendar dates are subject to change, and therefore, the website should be used to get the latest information.

Second Semester 2011

Residence Halls Open for Students	Mon	Jan 3, 2011
Faculty Return to Work	Mon	Jan 3
General Registration	Mon-Fri	Jan 3-7
Second Semester Classes Begin	Wed	Jan 5
Martin Luther King, Jr. Birthday Observance	Mon	Jan 17
Spring Break	Sat-Sun	Mar 5-13
Easter Break	Fri-Mon	Apr 22-25
Second Semester Classes End	Tu	Apr 26

Final Examinations Begin	Wed	Apr 27
Final Examinations End	Sat	Apr 30
Commencement	Sun	May 8

Summer Session 2011

Residence Halls Open for Students	Mon	June 6, 2011
Academic Advisement and General Registration	Mon	June 6
Summer Classes Begin	Tu	June 7
Independence Day Holiday	Mon	July 4
Summer Session Classes End	Tu	July 26
Final Examinations	Wed-Th	July 27-28

First Semester 2011

All-University Conference	Fri	Aug 19, 2011
Residence Halls Open for Freshman and Transfer Students	Tu	Aug 16
Freshman and Transfer Student Orientation Activities	Wed-Tu	Aug 17-23
General Registration	Mon-Tu	Aug 22-23
Upperclassmen Arrive; Residence Halls Open	Mon	Aug 22
First Semester Classes Begin	Wed	Aug 24
Labor Day Holiday	Mon	Sept 5
Thanksgiving Recess Begins After Last Class	Tu	Nov 22
Thanksgiving Recess Ends	Sun	Nov 27
First Semester Classes End	Mon	Dec 5
Final Examinations Begin	Wed	Dec 7
Final Examinations End	Tu	Dec 13

Second Semester 2012

Residence Halls Open for Students	Mon	Jan 9, 2012
Faculty Return to Work	Mon	Jan 9
General Registration	Mon-Tu	Jan 9-10
Second Semester Classes Begin	Wed	Jan 11
Martin Luther King, Jr. Birthday Observance	Mon	Jan 16
Spring Break	Sat-Sun	Mar 3-11
Easter Break	Th-Mon	Apr 5-9
Second Semester Classes End	Mon	Apr 30
Final Examinations Begin	Wed	May 2
Final Examinations End	Sat	May 5
Commencement	Sat	May 12

Summer Session 2012

Residence Halls Open for Students	Mon	June 4, 2012
Academic Advisement and General Registration	Mon	June 4
Summer Classes Begin	Tu	June 5

Independence Day Holiday	Wed	July 4
Summer Session Classes End	Tu	July 24
Final Examinations	Wed-Th	July 25-26

ACADEMIC REGULATIONS

INTRODUCTION

Tuskegee University is committed to providing an academic climate and regulations and procedures necessary to assist students to progress sequentially and effectively toward their educational goals. A copy of the Tuskegee University Academic Regulations and Procedures for Undergraduates is provided for each student. Periodically, new regulations and revisions will be released through memoranda by the Provost. Students are responsible for becoming familiar with the regulations and are expected to comply with them. They should also become familiar with the Tuskegee University Bulletin (Catalog), Student Handbook and System of Judiciaries and policies governing financial aid. Additionally, students should read and follow the instructions provided in the Course Schedule Booklet which is released each term.

The administration of each academic program is guided by the Dean of the academic unit. Students should consult their academic advisors and department heads when needed on matters relative to academic affairs, and they may confer with their College Dean and with the Provost if the situation warrants.

Programs offered in Teacher Education, Engineering, Architecture, Social Work, Nursing, Allied Health and Veterinary Medicine have supplemental regulations which are not outlined in these regulations. Students will need to report to the appropriate dean's office to receive a copy of the additional regulations and procedures.

REGISTRATION AND ENROLLMENT

Documentation of Enrollment

Students who have been officially accepted to Tuskegee University must have on file an official final high school transcript which must indicate date of graduation and signature of school official and/or seal. The student who fails to provide the official transcript at the time of initial enrollment, will be permitted to enroll for a first term only. The student will not be permitted to register for a second term if the official transcript has not been received by the end of the first term of enrollment. It is the responsibility of the student to ensure that Tuskegee University receives the official transcript.

Advisement

Advising is an important part of the academic process. Students must confer with their academic advisor for assistance before selecting courses. Courses should be taken in sequence, in accordance with the curriculum for the degree. Students must follow the rules and regulations of the University, and they must successfully complete each course in the curriculum to receive a degree.

The student is ultimately responsible for successfully completing curricular requirements. Therefore, each student should maintain accurate records of his/her progress in meeting requirements for the degree. If there are prerequisites for courses, they must be met before the student is permitted to enroll in the courses. During preregistration, students are permitted to enroll in the next level of courses. However, if students fail to meet the prerequisites by the beginning of the subsequent term, they must correct their registration by dropping those courses for which they have not met the prerequisites. The University reserves the right to administratively drop students from courses anytime during the semester for which they are not properly registered.

The Registrar is the official spokesperson for the University with regard to the successful completion of any curriculum. An individual faculty serves as an advisor, but does not have the authority to release statements that the student has met degree requirements.

The Registration and Enrollment Process

Registration is the process by which one becomes enrolled as a student at Tuskegee University. Its two basic steps are the completion and filing of informational forms and the payment of incidental and other fees for various purposes during a prescribed time period. Registrations are audited by the Registrar and the Provost to assure that students are in compliance with the regulations. In the event that the audit reveals that students are not in compliance with the regulations, they will be required to correct their registration. Additionally, the University reserves the right to administratively drop students from courses, or withdraw them if they refuse to correct their registration.

The following are the responsibilities in the process which rest with the student:

1. Become familiar with the University Calendar appearing in the Course Schedule Booklet and a number of other media throughout the University. Familiarity with the Calendar makes the registration process easier.
2. Complete registration according to regulations. Credit will not be earned unless the official registration is filed with the Registrar.
3. The Student Data Form is critical to the registration process. Each student must provide correct information so that documents such as grades, registration materials and bills will be received by the student. Students who falsify information, particularly those who intentionally change address data to incorrect information, may be suspended from the University.
4. Consult with the appropriate academic advisor and secure the right signatures on forms as required in order to make certain that proper course sequences for the curriculum in which the student is enrolled are being followed.
5. Become familiar with the fee structure and inform his/her parents/guardians where applicable of the fees required for enrollment.

Students who do not complete their registration in accordance with the dates stated in the University calendar will not be allowed to attend classes.

Categories of Students According to Registration and Enrollment

FULL-TIME STUDENT: Full-time student is one enrolled in an academic program of at least

twelve semester hours or in an assignment which is not necessarily course work but which requires a full scholastic day's work to accomplish. Such an assignment would be an undergraduate student's Cooperative Education field project.

PART-TIME STUDENT: A part-time student is one enrolled in an academic program totaling less than twelve hours or in an assignment which is not necessarily course work but which requires a portion of a scholastic day's work to accomplish.

UNCLASSIFIED STUDENT: Unclassified student is one who does not wish to become a candidate for a degree. The individual may select specialized programs or enroll in short courses (or "minicourses") that will prepare him/her for a particular vocation or promotion and advancement in occupations or fill some general need or interest.

Should an unclassified student subsequently desire to become a candidate for a degree, the amount of credit for work already completed will be determined by the department in which the student expects to major.

TRANSFER STUDENT: A transfer student is a person admitted/applying to Tuskegee University after attending another institution of higher learning.

A student who attends summer school immediately after receiving a high school diploma and before enrolling at Tuskegee University will not be considered a transfer student. If the student expects to transfer college credit hours completed during the summer period prior to enrolling in Tuskegee University, a transcript must be submitted to the Registrar by September and the student must also inform his/her advisor that transfer credit is being requested.

A transfer student must indicate on the application for admission all previous colleges or universities attended. A student who has registered in other colleges and/or universities may not disregard his/her record in such institutions and make application for admission to Tuskegee University solely on the basis of the high school record. Any student who does so is subject to suspension from the University and transfer credit will be denied.

A student who transfers to Tuskegee University from other colleges and universities is governed by the following specific requirements and procedures:

1. A transfer student must satisfy the general orientation requirement. If the transfer student transfers at least 30 semester hours, only one semester of orientation is required; otherwise, two semesters of orientation must be taken.
2. A transfer student who has not received transfer credit for Mathematics, English, and Reading, and who does not present satisfactory records on tests specified by the University must take Placement Examinations prescribed before enrolling in any courses.
3. A transfer student must satisfy Physical Education requirements.
4. A transfer student must be eligible to reenter the institution last attended when application for admission to Tuskegee University is submitted.
5. A student desiring to transfer to Tuskegee University must be able to furnish the following:
    a. A letter of good standing from the institution last attended.
    b. A certificate of high school work covering the Tuskegee University requirements for admission.
    c. An official transcript of the work done in all institutions prior to application for admission to Tuskegee. This transcript should reach the Admissions

Office of Tuskegee University at least one month before the date the candidate expects to enroll. If possible, a marked catalog showing courses referred to in the transcript presented should be submitted.

d. A cumulative grade point average that meets at least the minimum academic retention level set by Tuskegee University as defined in this document under the section on "Probation, Suspension, and Dismissal".

6. Credit for courses transferred to Tuskegee University is awarded under the normal conditions prevailing in institutions of higher education:
   a. The courses accepted and the number of hours completed determine the classification of a transfer student.
   b. Transfer credit is given only for courses approved by the Dean of the School in which the student applies for admission. Transfer credit will be awarded on a course-by-course basis. Courses in which students earned "D" grades will not be considered for transfer credit.
   c. Credit toward graduation is given only for courses that have been approved for transfer by the dean. The maximum transfer credit allowed to meet degree requirements will not exceed 80 hours.
   d. Courses taken on a pass/fail basis will not be considered for transfer.
   e. Courses in which credit was not awarded for the degree will not be considered for transfer credit.

7. A student who wishes to apply for financial assistance should request each postsecondary institution attended to forward an official financial aid transcript to the Tuskegee University Office of Financial Aid Services.

INTERNATIONAL STUDENT: Every effort is made to place the international student in classes commensurate with the student's level of achievement. The academic credentials of each international student are evaluated with awareness for foreign programs.

The Admissions Officer consults with the Dean of the College in which an international student should be registered. As a result of this consultation, a decision is made about the amount of credit a transfer student receives based on the student's prior academic achievement. Where, after consultation, there is doubt as to how the transcript shall be evaluated, the student will be given an advanced placement test in the subject(s) in question, without penalty for failure. Permission for any student to take the Placement test(s) must be secured from the Dean of the College in which the student is registered. Such test(s) will be administered by the Testing Officer prior to the student's registration for classes in accordance with provisions prescribed under Examination for Credit of this handbook.

The International student transferring to Tuskegee University from another international institution also must satisfy requirements listed under the headings "Documentation for Enrollment" and "Transfer Student".

TRANSIENT STUDENT: This term applies to the student enrolled in another college who wishes to take courses at Tuskegee University for one semester, then return to the other college for the degree. A transcript from the other college is not required; however, Tuskegee University reserves the right to request scholastic credentials or official evidence of enrollment from the other college. The student should present an official transcript or a letter of good standing from

his/her institution. When a transient student is accepted, admission to Tuskegee University will be only for the term indicated on the transient form. Subsequent admission may be approved upon request. If the transient student wishes to transfer to Tuskegee University, application as a regular transfer student and official transcripts from all previously attended colleges must be submitted.

Time Limit for Graduation and Changes in Curriculum

An academic advisor is available to each student. The advisor issues the student a curriculum sheet. The curriculum sheets are also available in the Dean's offices. It is the responsibility of each student to secure a curriculum sheet and follow it to meet graduation requirements. Many courses require prerequisites. The student must meet stated prerequisites before permission is granted for enrollment in a particular course. Most curricula are designed for completion in four years and there are few which may require five years. The University reserves the right to delete curricula, make changes in courses which will require the students to meet the standards of the courses at the time they are taken, delete and/or add courses, and change standards in the curricula. If the curriculum changes, the student may be permitted, as a rule, to follow the curriculum published in the catalog for the year in which he entered the University. However, should a student take more than five years to complete a curriculum, the student shall be required to meet the new curricula requirements including any increase in the total number of hours. If a student changes his major, the student will be guided by the curriculum in force at the time the major is changed.

Due to external agencies, such as the accrediting bodies or to meet societal needs, a curriculum may be required to change on short notice, for example, in areas like Nursing, Veterinary Medicine, Teacher Education, and Engineering.

When changes in the curriculum are made, the student will be notified by the Dean of the College so that a plan of action will be made in consultation with the advisor for the student to meet graduation requirements.

Concurrent Registration

A student may register at Tuskegee University and concurrently at another educational institution only with the written approval of the College Dean in which he/she is enrolled. The total class load the student may take cannot exceed the load prescribed by Tuskegee University.

Registration at Another Institution

A student may register at another institution for course credit only with the prior written approval of the College Dean in which he/she is enrolled. The student should provide the College Dean a description of the course from the institution in which the student wishes to enroll. The description will enable the Dean to determine the compatibility of the course to the Tuskegee University course. A limit of eighteen semester hours of work will be the maximum allowed.

A request will be considered provided that the student's Dean certifies that:

1. The course is appropriate for the student’s degree program.
2. The student is not a transfer student who has completed more than eighteen semester hours at another institution. A student who is a transfer student with at

least 18 semester hours of transfer credit will not be allowed to take additional hours at another institution.

Transfer credit will not be granted for substitute courses taken at another University if the student has earned a D or E grade in the course at Tuskegee University. A student who earns a D or F grade in a required course at Tuskegee University must repeat it at Tuskegee University.

Registration for Off-Campus Work-Study Programs

A student engaged in off-campus cooperative work-study programs not leading toward credit will be required to register for the period he/she is engaged in off-campus work experience and to pay a registration service fee.

Auditing

In order to audit a course, a student must receive permission of the instructor and the consent of the Dean of the College. Only one course may be audited during a semester. A student must register as an auditor for a given course after securing the signature of the faculty adviser on the course selection form or change in registration form and file the form with the Office of the Registrar.

A full-time student is not required to pay any additional fees to audit, but he/she must have permission to take an overload if applicable. Total credit hours, including audited course, should not exceed 22 hours, excluding choir band and ROTC. Maximum class load for summer is 10 hours. A part-time student is required to pay the full fee per credit hour for courses which he/she audits.

Credit is not awarded for auditing a course and no examination for credit may be given; however, a student is expected to attend classes for audit status.

A student may register for credit in a course previously audited only with written permission of the Dean of the College.

Dropping, Adding, Changing Sections and Withdrawing from School

A student may drop, add, or change courses or sections of a course with the permission of his/her instructor and advisor. Additions/drops and changes in courses and course sections must be done in accordance with the University Calendar.

A student who wishes to change his/her schedule after having registered must pay a fee listed in the University Schedule of Fees.

The proper forms for dropping, adding, and changing courses or course sections should be obtained from the College Dean or Registrar. These forms must be signed by the course instructor and the advisor. The University reserves the right to require the signature of the College Dean before a student may drop certain courses, particularly those general education requirement courses that must be taken in the lower division. Additionally, some changes may require the approval of the Provost. All changes in Registration must be submitted to the Registrar to become valid. The Registrar will notify the College Dean and instructor of validated changes by way of updated class rolls and/or final grade sheets.

Courses dropped within the calendar dates for changing sections and courses will not

appear on the student's permanent record.

A student who drops all courses must also complete the withdrawal procedure. Appropriate refunds will be determined by the Business Office.

A student desiring to withdraw from Tuskegee University must confer with his/her College Dean. The Dean initiates the withdrawal procedure which is processed through the Office of the Dean of Students and completed in the Registrar's Office. The effective date of withdrawal is the date that the form is processed in the Office of the Registrar. The Registrar, in turn, notifies the College Dean, instructor, Director of Financial Aid and all others who need to know of the withdrawal.

The grade for unofficial drops and withdrawals is "Y".

The last date for withdrawal for first semester is the Tuesday before the Thanksgiving recess, for second semester it is the third Friday in April, and for the summer session it is the third Friday in July.

Administrative Withdrawal

A student may receive an administrative withdrawal because of disciplinary action, failure to comply with policies and procedures, or for failure to meet financial obligations in a timely manner. An official letter indicating the withdrawal will be released to the student and the appropriate University officials will be notified. The grade for administrative withdrawal is "W". A student who receives a disciplinary action of “suspension or expulsion” will have an administrative action posted on the academic transcript.

Substitution for Courses

Requests to substitute required courses in a curriculum must be submitted, with justifications, to the Dean of the College in which the student is enrolled. If the Dean approves a request, the Dean notifies the Registrar. Each student must officially clear all substitutions by the first Friday in November for the first semester, by the first Friday in March for the second semester, and by the first Friday in July for the summer term.

Lower level courses cannot be substituted for upper level courses. Substitutes cannot be made for the Reading, Orientation and Physical Education requirements.

Reenrollment

A student not regularly enrolled in two consecutive terms is required to apply for reenrollment at least one month before the opening of the term in which enrollment is desired. The forms for reenrollment may be obtained from the Registrar's Office.

A student who withdraws from the University or from a professional program for any reason must apply for reenrollment through the Registrar. The Registrar will refer the application to the appropriate College Dean for approval before action is taken on the request. Permission to reenroll will not be granted unless the dean is satisfied that the student withdrew for sound and substantial reason(s).

CLASS LOAD

Maximum and Minimum Class Load

The minimum load for a full-time undergraduate student is twelve (12) credit hours per semester. A student who registers for less than the minimum load is classified as a part-time student.

A normal load for a full-time undergraduate student in good standing shall not exceed eighteen (18) credit hours per semester exclusive of ROTC, choir and band. An additional fee is charged for each credit hour beyond 18 in accordance with the prevailing fee schedule.

Students whose cumulative grade point averages fall below 2.00 may not exceed fifteen (15) credit hours.

The maximum class load under any circumstances is 22 hours per semester exclusive of ROTC, choir and band. The maximum class load in the summer is 11 hours except for students enrolled in internships, clinical and field work.

Increased Class Load

The curriculum sheets determine the normal class load. The usual maximum class load is eighteen (18) semester hours and in cases where four-hour courses exist, the load may reach nineteen (19) credit hours for a given semester. All students may register in accordance with the curriculum up to nineteen (19) hours without special approval. A freshman and sophomore student may not elect hours in excess of the load listed on curricular sheets. Only junior and/or senior students whose cumulative grade point averages are at least 3.00 may register for hours beyond nineteen (19) and up to a maximum of twenty-two (22) credits during a given semester.

The load for the summer is nine hours. Students who hold cumulative grade point averages of at least 3.00 may be approved for a maximum load of 11 hours.

The student must apply to his/her College Dean who may recommend requests for such increases in class loads. The Dean of the College must notify the Provost in writing of recommended cases. The Provost will not consider requests of students whose cumulative grade point averages fall below 3.00. Approved requests by the Provost will be forwarded to the Registrar.

Minimum Class Size

The minimum class size during the academic year is 15 students and the summer is 10 students. The University reserves the right to cancel classes with fewer students than the stated minimum. Exceptions may be made by the Provost.

SPECIAL COURSE REQUIREMENTS AND PLACEMENT

English

Each student is required to take English 101 and 102. A grade of at least "C" in English 101 and 102 must be earned. A student who demonstrates suitable proficiency in these courses as determined by the Department of English and Foreign Languages may be assigned to other

English courses but will not be required to take English 101 and/or 102.

Students who enter with a SAT Verbal Score of at least 540 or an ACT English Score of 23 or a B average in high school English classes will be placed in Honors English 101. Detailed information on placement in other English courses is located in the Admission Office and the English Department.

Mathematics

The entering freshman student will register for mathematics courses as determined by his/her level of performance on the tests specified by Tuskegee University. Students who enter with a SAT Math Score of at least 540 or an ACT Math Score of 24 will be placed in Mathematics 110. Detailed information on placement in other mathematics courses is located in the Admission Office and the Mathematics Department. A student may satisfy the mathematics curricular requirements in his/her specific major by demonstrating suitable proficiency in mathematics as determined by the Department of Mathematics.

Orientation

Each new student is required to take two semesters of general orientation during the freshman year. The transfer student who transfers at least 30 semester hours must also satisfy the general orientation requirement by completing one semester of orientation.

English Proficiency Examination

The purpose of the English Proficiency Examination (EPE) is to certify that a student graduating from Tuskegee University has demonstrated proficiency in the use of the English language by passing a standardized test on usage and by writing a coherent, articulate essay. A student should register in his/her Dean's Office for the English Proficiency Examination as early as possible during the sophomore year.

The examination is administered to students who have earned at least the "C" grade in English 101 and 102 and who have passed at least 30 hours. A student's eligibility to take the examination is determined by the College Dean. The examination of ineligible students will not be evaluated.

No student can be graduated until the Registrar has a statement from the Provost certifying that he/she has passed the English Proficiency Examination.

The examination is given three times a year --- once in the fall, spring and summer. The dates are printed in the University Calendar. A student who does not take the examination at the scheduled time must wait until the next scheduled examination. The student who fails the examination the first time may take it again or as many times as necessary to make a satisfactory score. Both parts of the examination must be taken on the first attempt; thereafter, only those portions of the test failed need to be taken.

Tutorial sessions will be provided to meet the deficiencies of students who fail the EPE. Each student will be REQUIRED to avail himself/herself of this opportunity until he/she has passed the examination.

A student who holds an undergraduate degree from another U.S. institution and who is pursuing a degree at Tuskegee University will not be required to satisfy the EPE requirement.

Additionally, a student who is enrolled in a Dual Degree Program and who has met the lower division requirements (Freshman and Sophomore requirements) at the parent institution at the time of admission to Tuskegee University, will not be required to meet the EPE requirement.

Time Limit to Complete Requirements in Orientation, English, Mathematics and English Proficiency Examination

Students who have attempted 60 or more hours but have not completed any one of the following requirements will not be permitted to enroll in new courses. Students may repeat courses in which failing grades have been earned while attempting to meet any one of the following:

1. **Orientation.** Orientation should be taken during the first year of enrollment.
2. **The English Requirement.** The student must pass at grade "C" level, English 101 and 102.
3. **The student must pass both parts of the English Proficiency Examination.**
4. If the student's curriculum requires Mathematics 107, the student must meet this requirement.

If a student is deficient in any one of the above requirements, the student will be allowed to work only on that requirement, which means that the student may be part-time.

If the student has not taken and/or passed the English Proficiency Examination, after the 60 hours, the student may not enroll in any courses and special tutorial sections will be designed to assist the student.

Physical Education

Each student is required to earn a minimum of two credits in two physical education activity courses. One activity course will not satisfy the Physical Education requirement.

A student who has physical disabilities is required to complete courses specifically designed for him/her. The course is usually "Adaptive Physical Education." Documentation of disability is required.

A student who has earned a bachelor's degree is not required to meet the physical education requirement.

Students who are enrolled in Army and Air Force ROTC programs may meet the physical duration requirement as determined by the Unit Heads of ROTC. Each semester, the Unit Heads of ROTC will submit a list to the Provost, College Deans, and Registrar with the names of the students who have met the physical training requirement. No substitution courses will be listed on the transcript, but the designation by the ROTC units will be sufficient to satisfy the physical education requirement.

Foreign Language

A student whose curriculum requires two years of study of a foreign language and who has studied French or Spanish before coming to Tuskegee must take a foreign-language proficiency examination in that language before enrolling in it. A student demonstrating an acceptable level of proficiency will be exempted from either the whole or a portion of the requirement in his/her program, the exemption being based upon the level of proficiency demonstrated. The student, in consultation with the College Dean, will enroll in other courses for

the equivalent number of credit hours which he/she was exempted.

CLASS ATTENDANCE

The student is expected to attend regularly all courses in which he/she is enrolled and to complete all required work in such courses. Irregular attendance or any substantial number of absences will weigh adversely in the consideration of any petition for a special academic privilege, such as makeup examination(s). Makeup examinations are rarely given.

A student who enrolls for a course is expected to attend the class beginning with the first day of class. However, a student who does not attend the class for the first time in accordance with the date listed on the University calendar may be denied the right to enter the class and the space reserved for him/her may be lost. The student may, therefore, be required to drop the course.

Validation of absences while engaged in official representation for Tuskegee University is secured through the Provost. Evidence giving justification for absences because of illness and other personal reasons must be provided by the student to the instructor. The instructor has the right to accept or deny the justification.

Regular classes during the academic year are scheduled as indicated below:

Period	**MWF**	**TTH**
1	8:10 - 9:00	8:10 - 9:25
2	9:10 -10:00	9:40 -10:55
3	10:10 -11:00	1:10 -12:25
4	11:10 -12:00	1:10 - 2:25
5	12:10 - 1:00	2:40 - 3:55
6	1:10 - 2:00	4:10 - 5:25
7	2:10 - 3:00	5:40 - 6:55
8	3:10 - 4:00	7:10 - 8:25
9	4:10 - 5:00	
	MW	
10	5:10 - 6:25	
11	6:35 - 7:50	
12	8:00 - 9:15	

Class periods beyond 5:00 p.m. may be scheduled for longer periods to accommodate undergraduate students and other groups of students including those enrolled in continuing education, graduate courses designed for adult learners.

Variations from the above schedule must be recommended by the College Dean and approved by the Provost. Class hours for the summer session will be found in the Summer School Schedule of Courses. Punctuality in attending classes is expected of the student. Official registration is required for class attendance.

CLASS CONDUCT

The atmosphere in the classroom should be one in which the greatest amount of desirable teaching and learning can take place. Therefore, the instructor has the right to establish the rules and regulations for the classroom for it to a conducive place for teaching and learning. All unnecessary noise and confusion must be avoided and this can only happen when the students realize their responsibility for proper and courteous behavior.

Respect for the professor and classmates in the classroom is essential. Moreover, obscene language and aggressive behavior will not be tolerated. Any student judged by the instructor to be verbally or physically disruptive will be removed from the classroom immediately by a Campus Safety and Security Officer and the student will be withdrawn from the class.

CLASS RESPONSIBILITIES

Regular and punctual attendance is the responsibility of the individual student.

The student is expected to assume the responsibility for regularly attendance and to accept the consequences of failure to attend. The student is not permitted to bring children, pets or other guest to class.

Student's Responsibility

1. The student is responsible for purchasing books and other required material during the first week of class.
2. The student is responsible for all material covered and assigned in each course for which he/she is registered. Absence from class does not relieve him/her of this responsibility.
3. The student is expected to be present for all laboratory periods, scheduled examinations, and other activities that may require special preparation.
4. The student is responsible for initiating any request to make up an examination, a laboratory exercise, or other work missed because of class absence. If the instructor requests a statement concerning the reason for the absence, the student should obtain appropriate documentation. The instructor reserves the right to accept or reject the documentation.

Instructor's Responsibility

1. The instructor is responsible for explaining to the class, at the beginning of the term, any specific expectations concerning attendance.
2. The instructor is responsible for providing the student with a course syllabus, information on the examinations and other class requirements that will provide a basis for evaluating student performance. The instructor may choose to modify course requirements during the semester. Modifications will be announced in class.
3. The instructor is expected to give at least two evaluations and provide students the results before the last day for dropping classes. These evaluations will also be computed in the final grade.

4. The instructor is required to evaluate the performance of students and inform them of the results in a timely manner.
5. The instructor is required to give a final evaluation in each lecture course. In most cases this will be a final examination. However, in several courses this could be a paper or project. The final examination must be given in accordance with the established schedule released by the Registrar.

EXAMINATIONS AND THE ADVANCED PLACEMENT PROGRAM

The Advanced Placement Program

Advanced placement courses offer the students the opportunity to do college-level work while still in high school. They are available to qualified, academically oriented students in the eleventh and twelfth grades. Upon completion of the AP course, students may take the nationally administered examination in May. According to their performance on the examination, they may receive up to twelve college credit hours for each examination they take. This makes it possible for a student who is successful on the examination(s) and in the courses(s) to enter college at or near the sophomore level.

This three-hour examination contains a multiple-choice section and an essay section. Every examination receives an overall grade on a five-point scale:

5 (extremely well qualified)
4 (well qualified)
3 (qualified)
2 (possibly qualified)
1 (no recommendation)

An AP Grade Report is sent in early July to each student, school, and if the student requests it, to his or her college. Tuskegee University accepts only grades of 3 or above.

Examination for Credit

An undergraduate student in good standing and currently registered at Tuskegee University who wishes to obtain credit for experience, training, or self-study for which University credit previously had not been granted, may petition for credit by examination under the following conditions:

1. The student may apply for the examination by submitting a written request to the Dean of the College in which he/she is enrolled. Should the Dean approve the request, then the student must secure the approval of the department in which the examination is to be administered and the Dean of that College. The Dean will forward the request to the Provost for action.
2. In no case may such examination be based on work used for graduation from high school, in a foreign language that is the mother tongue of the applicant, or in a course not listed in the Tuskegee University Catalog.
3. Grades earned in these examinations shall be submitted and recorded in the same way as regularly registered courses.
4. Examinations for credit will not be approved for courses that have been failed, audited, or for courses below the level for which college credit has been granted previously.

5. All examinations for credit must be authorized by a committee appointed by the Provost. No examination shall be administered until the applicant has received a permit from the Registrar's Office for which the appropriate fee per credit hour has been paid.

College-Level Examination Program (CLEP)

The College-Level Examination Program is designed to provide an opportunity for a student to earn college credit for courses in which he/she can demonstrate a satisfactory level of proficiency. The decision to earn credit for a specified course through CLEP should be made prior to enrolling in the course.

A student who plans to take CLEP examinations should consult his/her College Dean for information regarding Tuskegee University courses equivalents, fees, and semester credit hours. The tests are administered by the University Testing Officer. A student wishing to sit for a CLEP examination at Tuskegee University or another Center should request written permission from the College Dean. A student's grade point average will not be affected by CLEP examinations.

The student must score at the acceptable level which is published for the CLEP general examination and subject examinations to receive credit for the courses that are substantially similar to those required in the curriculum for which the student registered or which may be used as electives. Credit may not be awarded for a course in which a student has received the "D", "F", "Y", or "F" grade.

Administration of Examinations

Credit by examination and CLEP should be taken during the early semesters of a student's enrollment. No student will be permitted to take an examination for credit including CLEP in the semester in which he/she completes the requirements for graduation.

ROTC POLICY

A student enrolled in 300 and 400 level ROTC courses may use them in his/her requirements for graduation. The maximum number of hours for substitution is twelve. Substitutions are made for free electives only. The student should consult his/her School Dean for information regarding the substitution and procedure for making use of ROTC courses as a part of the requirement for graduation. Basic level ROTC, 100 and 200 level courses, will not be used to meet the requirements for graduation.

CLASSIFICATION

A student is classified according to the number of semester hours for which final grades are recorded. The classification is based solely on hours completed.

Freshman Classification

A student who has accumulated less than 30 hours is classified as a freshman.

Sophomore Classification

A student who has accumulated at least 30 hours but less than 60 hours of a prescribed curriculum is classified as a sophomore. The highest classification in a preprofessional program is sophomore.

Junior Classification

A student who has accumulated at least 60 hours but less than 90 hours of a prescribed curriculum is classified as a junior.

Senior Classification

A student who has accumulated at least 90 hours of a prescribed curriculum is classified as a senior.

Classification In a Professional Program

Classification in a professional program is based on level of work.

Transfer Credit

College credit that is approved for transfer from other institutions of higher learning is used in determining a student's classification, but it is not used in calculating the cumulative grade point average.

GRADE POINT AVERAGE

A student is expected to maintain a cumulative grade point average of at least 2.00 (C) in his/her studies. Grade point averages are expressed to two decimal places. The grades and their corresponding grade point values are as follows:

A – Excellent	4 grade points a credit hr
B – Good	3 grade points a credit hr
C – Average	2 grade points a credit hr
D - Poor, but passing	1 grade point a credit hr
F – Failure	0 grade points a credit hr
Y - Unauthorized withdrawal, failing grade	0 grade points a credit hr
P – Pass	Not included in GPA computations
F – Fail	Not included in GPA computations
I – Incomplete	Not included in GPA computations
S – Satisfactory	Not included in GPA computations
U – Unsatisfactory	Not included in GPA computations
W – Withdrawal	Not included in GPA computations
NG - No grade	Not included in GPA computations

The grading system for noncredit courses is S - Satisfactory; U - Unsatisfactory; I - Incomplete

The grade point average is computed for all courses taken while enrolled at the University -- whether the courses are in the student's current curriculum or not - and all courses pursued in other Tuskegee University official exchange programs. For Veterinary Medicine students, courses completed in the Animal/Veterinary Science program are excluded.

The cumulative grade point average covers ALL semester and summer sessions and is computer as follows:

$$\frac{\text{Total grade points}}{\text{Total credit hours (adjusted)}} = \text{Cumulative grade point average}$$

Examples of the computation of cumulative averages for a student are given below:

First Semester

Subject	Grade	Credit Hours	Points
English 101	B	3	9
Mathematics 106	E	4	0
Chemistry 221	C	3	6
Chemistry 223 (Lab)	C	1	2
Physical Education 111	A	1	4
History 103	D	3	3
Totals for Computation		15	24

Cumulative Grade Point Average (CGPA) = Grade points/credit hours = 24/15 = 1.60

Second Semester

Subject	Grade	Credit Hours	Points
English 102	C	3	6
Math 106 (Replacement)	C	4	8
Chemistry 222	B	3	9
Chemistry 224 (Lab)	B	1	3
Physical Education 112	A	1	4
History (Replacement)	B	3	9
Totals		15	39

First Semester Total	15	24
Cumulative Totals	30	63
Subtract hours repeated (Math 106 & History 103)	7	3
Current adjusted totals	23	60

The student's cumulative hours are 23 and the cumulative grade point average after completing two semesters is 60/23 = 2.61.

REGULATIONS REGARDING GRADES

The Grade "I" (Incomplete)

The grade "I" (Incomplete) is given when work in the course has been substantially completed but the student has missed an examination or has failed to perform some other requirement of a course because of illness, emergencies and other justifiable circumstances. The student or his designee must initiate the request before the instructor records the final grade and documentation of the circumstances must be presented to the instructor to be considered for the "I" grade. The "I" grade is not given unless the student has satisfied the minimum attendance requirements set by the instructor and is otherwise doing "D" work or better in the course. Administrators cannot be involved in assigning the “I” grade.

In reporting the "I" grade, the instructor is required to submit with that grade the final letter grade which the student would receive should he/she fail to complete the requirement for which the "I" was assigned, such as "I"/"C", "I/F", and so on. The alternate letter grade then becomes the final grade for the course if conditions for the "I" grade are not satisfied. The Registrar will record the designated grade in the permanent record, and it will be included in the grade point average computation. In the absences of an alternate grade, the "I" grade becomes permanent.

The instructor is required also to enter in the "Remarks" section on his/her grade report sheet the specific reason(s) for the "I" grade and to record the requirements to be fulfilled for its removal. The Dean is to obtain this information for permanent record so that if the instructor is unavailable to supervise removal of the Incomplete, the student's department chairperson will be able to take responsibility for supervision and recording the grade change.

Reenrollment in the course is not required to remove the "I" grade. A student may also remove the "I" without being enrolled at the University. However, the student who is enrolled must complete the work for which the I grade was given in accordance with the following schedule: if the “I” grade was recorded during the first semester, the work must be completed by the third week in April; if the “I” grade was recorded during the second semester, the work must be completed by the third week in November; or the work may be completed in the Summer, if this is the case, the work must be completed by the third week in July. Following the completion of work, the instructor has six business days to deposit the grade in the Office of the Registrar.

"I" grades submitted on grade sheets at the time that grades must be submitted for degree candidates cannot be changed before graduation. Degree candidates must complete all work in accordance with the early examination schedule for seniors if they plan to receive the degree in the May Commencement.

Failure to remove the "I" grade during the next semester of enrollment will result in the posting of the alternate letter grade on the transcript. The time limit does not apply to courses listed as internships, projects, field work and clinical.

The Grades "F" and "Y"

The "F" grade is assigned when a student fails a course. The "Y" grade is assigned when a student did not attend classes and did not officially drop or withdraw from the course. The "Y" grade is treated as a failing grade which carries zero quality points in computing the grade point average.

The student who receives the grade of "F" or "Y", in a required course must repeat the course until it is passed. Courses will not be offered off-schedule to accommodate a student who

receives the grade of "F" or "Y". The student must wait until the course is offered again in the regular schedule. Each "F" or "Y" grade earned (including two, or more, in the same course) is included in the computation of the grade point average until removed, at which time only the passing grade is included in the computation. All grades earned, however, remain on the student's permanent record.

A student who makes a grade of "F" or "Y" in a free elective course will not be required to repeat the course. Instead, he/she may take another free elective course. In either case, both grades will remain a part of his/her permanent record and will be computed in his/her grade point average. If the student repeats the free elective in which a grade of “F” or “Y” was earned, the higher grade will be used to compute the grade point average.

Replacement Grades

A student who makes a "D", "F" or "Y" grade in a course may repeat the same course for a higher grade. The highest grade only is computed in the grade point average. If a higher grade is not earned, each "D" or "F" grade (whichever is applicable) earned in the same course is included in the computation. All grades earned, however, remain on the permanent record. After a passing grade is earned, only the credit hours for the passing grade are included in the computation of the cumulative grade point average.

Change of Grades

After the final grades are deposited in the Office of the Registrar, they are no longer the property of the instructor. Grades cannot be changed because the instructor or Dean wishes to revise or make a second judgment on them. A decision to change a grade cannot be based on a second examination or assessment of new work. In the event an instructor makes an error in reporting a grade, the instructor must give written justification for the change to his College Dean. The Dean must approve of the new grade and file it in the Office of the Registrar.

Release of Student's Academic Record

Tuskegee University compiles with the Family Education Rights and Privacy Act of 1974. One key component of this act is that a student's academic record may not be released to any party without the written consent of the student.

Official records are not open to the public and will not be released without the consent of the student. However, certain directory-type information may be released to the public on all students unless individual students state in writing to the Office of the Registrar that they do not wish for the information to be released. Such directory-type information may include name, address, telephone number, date and place of birth, major participation in activities, dates of attendance, and degrees and awards received.

Academic information is confidential. However, in order for the university to serve our students, academic information is shared with university administrative offices and academic advisors for the purpose of providing these services to the student.

Procedure to Inspect Education Records

Students may inspect and review their education record upon written request to the Registrar. This request should identify as precisely as possible the record(s) he/she wishes to inspect. The Registrar or staff designee will make the needed arrangements for access as promptly as possible and notify the student of the time and place to inspect the record(s).

Access will be given in 10 days or less from the date of receipt of the request. A student may inspect and review only the record(s) which relate to him/her.

COURSES

Repetition of Courses

A student may repeat courses in his/her major area of specialization to satisfy minimum achievement requirements of the College or department. This may involve specific courses or a pattern of courses prescribed for readmission into certain areas. In such cases, all grades are included in the computation of cumulative grade point average.

If the above situation does not apply, a course may not be repeated for academic credit when a student has earned a grade of "C" or better in it.

Pass-Fail Courses

A student may take courses under a pass-fail system of grading. This permits an individual to follow his/her interests without an effect upon the grade point average.

Junior and senior students can elect one course each semester on a pass-fail basis from electives included in their curricula and/or from enrichment courses. The maximum number of hours students may take on the pass-fail basis is twelve (12). Required courses cannot be taken in this manner.

Credit for pass-fail courses is the same as for other courses. Cumulative grade point averages, however, include only graded courses.

A student must indicate, within the period allowed for adding courses, whether a course is to be taken on a pass-fail basis. Credits earned on the pass-fail basis cannot be converted to a letter grade at a later time.

The interested student should consult his/her College Dean for further information and listing of courses which are approved for the pass-fail option.

Independent Study Courses

Independent study courses may be taken upon approval of the advisor and College Dean. These courses are usually designed for junior and senior level students. A student must have at least a 2.50 cumulative grade point average to be eligible to enroll in an independent study course.

Course Numbers

The numbering of courses is established on the following basis:

Classification	Level
Noncredit Courses	1-99
Lower Level Courses	100 and 200
Upper Level Courses	300 to 500
Graduate Level Courses Only	600 to 700

Freshman and sophomore students are advised to take courses at the100 and 200 levels before they enroll in upper level courses.

Declaring a Major and Changing a Major

A student may enroll as an undecided major in selected areas but, is encouraged to declare a major as soon as possible. Each student must declare a major by processing the appropriate forms through the Office of the Registrar upon accumulating 60 hours. The change in major within an academic unit begins with the academic advisor. Next, approval must be secured from the department head to which the transfer is being made. Final approval must be secured from the College Dean where the student is enrolled and the College Dean where the student is transferring. Changes must be recorded on the proper form, and the entire form must be deposited in the Registrar's Office for final processing and distribution.

Students who wish to change their majors must make the changes two weeks prior to preregistration.

Testing Policy and Assessment of Students

Tuskegee University administers an on-going assessment program. The purpose is to assess selected lifelong learning skills, particularly, those acquired in the first two years of college. These skills are reading, writing, reasoning, and mathematics. Periodically, various standardized test and survey forms are administered. Such assessments will be used to evaluate and make needed improvements in the University's educational programs and provide effective counseling and guidance for students.

Participation in these test and surveys is required, and the University has the option of taking necessary actions on students who do not participate in these assessments. Students who do not comply with the assessment policy will not be allowed to register the next term. We expect students to participate as they have in the past.

If a student is unable to take the test on the scheduled date, it becomes the responsibility of the student to make arrangements with the Provost to have the test administered on a convenient date before the end of the term.

REQUIREMENTS FOR GRADUATION

Candidates for a degree must satisfy the following:

1. Select and complete the specific curriculum leading to degree as follows:

    a. Satisfy all the requirements for completion of the Lower Division. (Freshman and Sophomore requirements) To do this, a student must have received a

passing grade in all courses required in the Lower Division of the particular curriculum which he/she has selected.

b. Complete 90 or more hours with a minimum grade point average of 2.00 and satisfy the lower division requirements, i.e. orientation, English, physical education, and the English Proficiency Examination, to be eligible to file an application for graduation.

c. Satisfy all of the requirements for completion of the Upper Division. To do this, a student first completes the Lower Division. This is prerequisite to admission to the Upper Division. The student must receive passing grades in all courses required in the Upper Division of the curriculum which he/she has selected. He/She must further pass such comprehensive examinations and complete such projects as may be required.

2. The student must satisfy all requirements for a degree listed below:

a. The student must earn at least twice as many grade points as there are semester credits required in his/her chosen curriculum; that is, cumulative grade point averages must not be less than 2.00 (C).

b. The student must meet the minimum grade requirement or average, for major courses in his/her area as stipulated on the curriculum sheet in the Dean's and Registrar's offices.

c. Students enrolled in a "career mobility track" in the Nursing Program must have enrolled in the program for a minimum of two semesters and must have at least 30 of the required credit hours assigned to nursing courses taken at Tuskegee University.

d. The student who has not completed requirements for graduation must be enrolled during the semester the degree is to be awarded. The student will not be permitted to take courses at another institution during the semester the degree is awarded.

e. The student must pay the diploma fee one month in advance of the expected graduation date.

f. The student must make proper settlement for all financial obligations which must be paid one month in advance of expected graduation date.

g. The student must satisfy all specific requirements listed under the college in which he/she is registered.

h. The student must successfully pass all University-wide examinations and examinations in his/her College including exit examinations.

i. The student must successfully pass the English Proficiency Examination and satisfy the Reading and Physical Education requirements.

j. The student must satisfy the faculty that he/she is a suitable representative of Tuskegee University.

k. he student must file application for graduation during the prescribed period. If requirements are not completed by the time specified, a new application must be filed. IT IS THE STUDENT'S RESPONSIBILITY TO VERIFY HIS/HER STATUS WITH THE REGISTRAR. A diploma fee is required and must be paid for each application for graduation.

l. All candidates for graduation must arrange a curriculum review with their

academic advisors at least two semesters prior to the anticipated graduation date. The advisor must submit the completed official curriculum review no later than August 1 for May candidates and no later than December 1 for summer candidates. The Registrar will notify students of their status prior to the next registration period.

Requests to substitute required courses in a curriculum must be submitted, with justifications, to the Dean of the College in which the student is enrolled. If the Dean approves the request, the Dean notifies the Registrar. The student must officially clear all substitutions by the first Friday in November for the first semester, by the first Friday in March for the second semester, and by the first Friday in July for the summer term.

DEGREES

Multiple Degrees

A student registered at Tuskegee University may pursue multiple degrees either concurrently or sequentially. Application should be made in the Registrar's Office during the student's sophomore year. Courses credited toward the first major may satisfy required or elective courses of subsequent majors as determined by the College Dean. Each degree may be conferred at the first commencement following completion of the requirements for that degree.

Dual Majors

Students may pursue dual majors for which curricular sheets are on file with the Registrar. The student must meet the minimum grade requirements for the dual major as stipulated on the curricular sheets in the Offices of the Dean and Registrar.

Awarding of Degrees

Students may not graduate until all degree requirements have been certified by the Registrar. Degrees are awarded in official ceremonies during the spring and summer commencements. No student will be allowed to participate in the ceremonies unless all degree requirements have been met. However, a student who completes the requirements for the degree in December will be issued a letter with the University seal which states that the requirements for the degree have been completed and the degree will be awarded in May.

Graduation with honors will be determined by the cumulative grade point average and residency prior to the semester that the degree will be awarded. If the diploma is mailed, the student must pay the mailing fee.

Students who wish to receive degrees at the official ceremony are required to participate in commencement rehearsal the Saturday before commencement which is usually held on Mother's Day. Appropriate academic attire must be worn. The University reserves the right to remove from the line of march any student who refuses to comply with policies on academic attire.

The University has the right to rescind a previously granted degree if it is determined that the degree was given in error or should have never been awarded.

The family of a student who dies during the student's graduating semester may receive the student's diploma provided the student attended at least twelve weeks of the graduating semester

and six weeks of the summer session, and the faculty members indicate that the student was passing all courses at the required level to receive the degree. The student must be enrolled in all courses that would permit him/her to qualify for graduation and must not have any other outstanding requirements. The faculty shall make its recommendation to the Dean who will follow the established procedure for final approval.

GOOD STANDING, PROBATION, SUSPENSION AND DISMISSAL

GOOD STANDING: **A status in which a student has a cumulative grade point average (CGPA) of 2.00 or greater.**

ACADEMIC PROBATION: **A status in which a student fails to maintain a cumulative grade point average of at least 2.00.**

ACADEMIC SUSPENSION: **A status in which a student is prevented from enrolling at the University for at least one semester because of the failure to meet minimal academic requirements.**

ACADEMIC DISMISSAL: A status in which a student is academically suspended for a second time because of a failure to meet minimal academic requirements. **A student dismissed is not encouraged to seek readmission**. The dismissal may be final based on the student's academic performance following an opportunity to make improvement.

A. Decisions on academic probation, suspension and dismissal will be taken at the end of each academic year. All academic actions will be posted on the student's transcript. At the end of the first semester, the student whose CGPA falls below 2.00 will receive a warning.

B. A student who fails to earn a CGPA of at least 2.00 at the end of any academic year will be on academic probation during the subsequent academic year.

C. A student who is on academic probation and does not meet the following minimal CGPA requirements will be suspended from the University:

Hours Attempted		Minimal CGPA	
At least	But less than	At least	But less than
0	24	0	1.60
24	48	1.60	1.70
48	60	1.70	1.80
60	72	1.80	1.90
72	84	1.90	2.00
84		2.00	

However, a student on probation who passes at least 12 hours for each semester enrolled during the probationary academic year with an average grade point average of not less than 2.00 will continue on probation even though the CGPA is below the expected minimal level indicated above.

D. A student whose CGPA falls below 1.00 will be promptly suspended from the University. Such a student shall not serve a probationary period.

E. A student who fails to meet the minimal academic requirements of the University will be suspended for at least one semester (excluding the Summer term). After this period of time, upon reapplying, he/she may be readmitted on probation provided he/she has a satisfactory campus citizenship record. Each petition will be considered on its merits. **Reinstatement is not automatic.** A student who fails to meet the minimal academic requirements of the University for a second time will be dismissed.

F. A student who is readmitted following an academic suspension must achieve the minimal CGPA requirements listed in "C" above by the end of the academic year in order to avoid dismissal.

G. A student who enrolls in less than 12 semester hours (less than six for a summer session) will be considered as part-time. A part-time student will be evaluated in the same manner as a full-time student.

H. A student must be able to document mitigating circumstances in order to appeal academic suspension and dismissal actions. The student must indicate in writing to the Provost the reasons for failure to meet the necessary satisfactory progress requirements. **Documentation to support the appeal is required**. Appeal letters for all students not enrolled in summer school at Tuskegee University must be received in the Office of the Provost **prior to July 1**. A student who enrolls in summer school at Tuskegee University may request a revaluation of his/her academic status **not later than August 12**. The Provost will submit the information to the Academic Appeals Committee. The Committee will forward its recommendation to the Provost who will inform the student of the decision.

I. The Provost notifies the student, College Deans, Dean of Students, Vice President for Business and Fiscal Affairs, Director of Financial Aid, Registrar and other appropriate parties when academic actions such as these are taken: academic probation, academic suspension, academic dismissal, readmission on academic probation and removal from academic probation.

Financial Aid Probation and Suspension

There is a policy on "Satisfactory Academic Progress" to determine a student's eligibility to receive financial aid which is separate from the above policy on academic actions. The student should consult the Financial Aid Office regarding the policy. Each student should become familiar with this policy.

APPEAL OF ACADEMIC DECISIONS

A student has the right to appeal decisions regarding his/her academic performance or academic requirements. Before initiating a petition for appeal, the student should attempt to resolve the problem directly with the instructor(s), person(s) concerned, and/or departmental faculty. The following guidelines are applicable in appealing an academic decision:

1. The student submits a written statement to the instructor's College Dean setting forth his/her complaint, efforts to resolve it, and supporting evidence or justification for the complaint. The College Dean, on receipt of this petition, should provide a copy of same to the instructor or person concerned.
2. The College Dean may appoint a Committee of the Faculty to review the written

statement from the student, secure additional information that the students may have, and to hear and examine evidence and information that the instructor or person concerned may have to support his/her decision. The Committee then makes a recommendation to the College Dean, submitting to him/her all supporting data, and the Dean then renders a decision which is immediately communicated in writing to the student, the person(s) concerned, and the Committee.

3. If the student or the person(s) concerned is dissatisfied with the decision of the instructor's College Dean, he/she may appeal to the Provost. The person appealing to the Provost must show justification and documentation for the appeal to be heard. If this is done, the Provost will review all information and evidence, and if he/she wishes, refer the matter to a Committee for further investigation and recommended actions. The Provost then renders a decision which is to be communicated to the student, the person(s) concerned, the College Dean, and the members of the Committee who have heard the case.
4. If the student or the person(s) concerned is dissatisfied with the decision of the Provost, he/she may appeal to the President of Tuskegee University. It is extremely rare that a case would require investigation at the level of the President. In fact, most decisions would be made at the Dean's level. However, a student or the person(s) concerned must justify and show evidence why the appeal should be heard by the President after the decision of the Provost has been rendered. The President will make a final decision in the case and communicate it to the Provost and to all other persons listed in Number 3 above.
5. All appeals of academic decisions, including request for review of instructors' grades, must be initiated not later than 30 calendar days after the decision was made. A student who is not in residence should mail the written statement to the College Dean.

ACADEMIC HONESTY

Honesty in academics, as well as in other matters, is expected of everyone at Tuskegee University. It is the obligation of all to adhere to this standard. Individuals are expected not to cheat or be dishonest, not to create the appearance of being dishonest, and not to contribute to or condone the dishonesty of others. Dishonesty, such as cheating, plagiarism, or knowingly furnishing false information to officials of the University will not be tolerated. The penalty could include failure in the course and possible dismissal or suspension from the University.

A Committee on Academic Honesty consisting of one faculty member from each College, and three students will be appointed by the Provost upon the recommendation of the College Deans and Dean of Students to hear charges of academic dishonesty. The chairman of the committee will be appointed by the Provost.

When an instructor has reason(s) to believe that a student has been dishonest or has aided in dishonest acts, he/she immediately informs the student and follows up with a written statement of the charges to the student, the head of the department, and Dean of the College in which the student is enrolled.

The written statement of the charges will be transmitted by the Dean to the chairperson of the Committee on Academic Honesty for a hearing. Separate charges or other offense(s) connected with dishonest incidents will be a part of the hearing, e.g., damage or destruction of property, threats or abuse - verbal or physical. The Committee will observe due process and

concern itself with establishing facts and rendering a decision of not guilty or guilty. The student will be given an opportunity to appear before the committee. Action considered appropriate will be recommended to the student's College Dean, who will inform the student of the findings and recommendations of the Committee, and of the Dean's decision in the case.

Grades for examinations and courses are the responsibility of the instructor, reflecting a professional judgement on a student's academic competence and accomplishment. If the result of the hearing would affect the grade of an examination or assignment for the course, the instructor will enter an "I" grade until the verdict of guilty or not guilty has been given. The chairperson of the Committee on Academic Honesty will give prompt notice of the committee's action to the student's Dean, who will relay the information to the instructor and the student.

A student who is adjudged not guilty will be entitled to an examination and/or grade within five (5) working days after the instructor has been notified of the verdict. Similarly, a student who is adjudged guilty will be awarded an appropriate grade within this specified period.

Tuskegee University maintains the right to suspend or dismiss a student who has been judged guilty of academic dishonesty by a committee.

MINIMUM STANDARDS FOR RETENTION IN A SPECIALIZED FIELD

The regulations set forth in this section pertain to the student whose cumulative grade point average may or may not be satisfactory according to the standards in the section on Good Standing, Probation, Suspension, and Dismissal, but whose performance in his/her field of specialization is unsatisfactory.

The student must achieve certain minimum standards in his/her specialized field since this is the field of his/her choice and presumably the area in which his/her aptitudes and interests lie. Most cases falling under this section are adjusted through guidance. A student who is removed from a field of specialization under the provisions of this section may apply for immediate registration in other areas of the University.

Grade Standards

After consultation with the student (and the advisor and faculty when it seems useful), a College Dean has the right to remove the student from a particular field of study or deny approval of a change of major application to a major field of study if the student's standing is as follows:

1. The student has earned during one semester two grades of "E" (D when C is the minimum passing grade) in certain subjects listed as essential for his/her choose field of specialization.
2. The student has earned one grade of "E" (D when C is the minimum passing grade) in each of two consecutive semesters in subjects listed as essential for his/her chosen field of specialization.

HONORS

Graduation Honors (Degree Courses)

In recognition of scholarship of high quality, a student may graduate with distinction

according to the following cumulative grade point averages:

3.75.....Summa Cum Laude
3.50.....Magna Cum Laude
3.25.....Cum Laude

To be eligible for graduation with honors, a student must have been in residence for at least three semesters, excluding the semester in which he/she qualifies for graduation and must have completed 45 semester hours at Tuskegee University. In the calculation of residence, two summer sessions of full-time enrollment in each session are considered the equivalent of one semester.

Candidates for honors must qualify one semester prior to commencement. Incomplete grades must be cleared for Honors consideration.

Dean's List

To be eligible for the Dean's List, a student must have the following:

1. A minimum overall grade point average of 2.00 (C).
2. Achieve a grade point average of not less than 3.25 for a given semester.
3. Pass at least 12 semester hours for a given semester unless the official curriculum in which the student is enrolled required less than 12 hours. The Dean's List will be published following the close of the semester.

Honor Roll

In recognition of scholarship of high quality and for the promotion and encouragement of scholarly work, there will be published during the fall semester an Annual Honor Roll based upon the work of the preceding school year.

To be eligible, a student must have a cumulative grade point average of at least 2.00 (C) and a grade point average of not less than 3.25 for the school year during which his/her eligibility is determined, and must have passed at least 12 semester hours each semester.

University Scholar

Each year, one student will be designated as a University Scholar in each of the colleges. To qualify as a University Scholar, a student must:

1. Be eligible for the Annual Honor Roll.
2. Be the top ranking student who has completed at least 90 hours but not more than 110 hours in the college.
3. Show exemplary personal qualities as attested by the Dean of his/her major area.

Eminent Scholar

The student who has maintained a grade point average of 4.00 qualifies as eminent scholar. If fewer than three students have a cumulative grade point average of 4.00, then the three students achieving the highest cumulative grade point average will be selected. All eminent scholars must also qualify for the Annual Honor Roll.

HONOR SOCIETIES

Each honor society representing an academic discipline has a faculty or staff advisor elected by the members of the society and formally appointed by the appropriate department head at the beginning of each academic year. The faculty advisor will hold at least one meeting a semester with the active members of the society to review the plans of activities. Criteria for each honor society are located in the offices of the Provost, the appropriate dean and the faculty advisor.

Listed below are the honor societies which are operational at Tuskegee University:

Alpha Delta Mu Honor Society (Social Work)
Alpha Kappa Delta Honor Society (Sociology)
Alpha Kappa Mu Honor Society (General)
Beta Kappa Chi Scientific Honor Society (Natural Sciences)
Beta Gamma Sigma Honor Society (Management)
Epsilon Tau Sigma Honor Society (Allied Health)
Eta Kappa Nu Honor Society (Electrical Engineering)
Gamma Sigma Delta Honor Society (Agriculture)
Golden Key National Honor Society (All Disciplines)
Kappa Delta Pi Honor Society (Education)
Lambda Iota Tau Honor Society (Literature)
Nursing Honor Society
Phi Delta Kappa Honor Society (Education)
Pi Mu Epsilon Honor Society (Mathematics)
Pi Sigma Alpha (Political Science)
Pi Sigma Phi Honor Society (Choir)
Pi Tau Sigma Honor Society (Mechanical Engineering)
Pi Theta Epsilon (Occupational Therapy)
Phi Zeta Honor Society (Veterinary Medicine)
Psi Chi Honor Society (Psychology)
Sigma Lambda Chi Honor Society (Construction Science and Management)
Sigma Xi Research Society (Research Sciences)
Tau Sigma Delta (Architecture)

COLLEGE OF AGRICULTURE, ENVIRONMENT AND NUTRITION SCIENCES

MISSION STATEMENT

The overall mission of the College of Agriculture, Environment and Nutrition Sciences is to develop students with skills in critical and systematic thinking, intellectual curiosity, and a desire for life-long learning, and to prepare them for leadership and service in the basic and applied agricultural, biological and chemical sciences.

The College aims to provide students of diverse ethnic, cultural and socioeconomic heritage with the scientific background necessary for the development of professional expertise;

the leadership skills needed to participate fully in a rapidly advancing, technological, informational society; the dedication to recognize and contribute to the resolution of real-world problems; and an appreciation and understanding of the humanities and social sciences that will provide a foundation for esthetic and moral growth as well as a broad perspective from which to view their professional and personal lives.

The Curricula within the College are designed to prepare students who ultimately will become professionals in areas that include agricultural sciences, food and nutritional sciences, biological and biomedical sciences, chemical and biochemical sciences, human and veterinary medicine and other health-related fields, environmental sciences, environmental policy and natural resource management, and rural development at local, regional, and international levels. Undergraduate and graduate students from the College will be positioned to enter the job market, enroll in professional or graduate programs, or engage in research, education or outreach at major research universities or centers. The College carries out its activities through the related themes of teaching, research, and services. The programs of the College are designed to achieve the following objectives.

1. To provide courses to students in other colleges whose professions will require technical knowledge of basic or applied biological or chemical sciences;
2. To provide science courses for nonscience majors, an overriding goal of which is to contribute to an increase among the nation's citizenry in scientific literacy, interest in science, and commitment to dealing with scientific issues as they interface with political, moral, social, and economic arenas;
3. to support the use of instructional strategies that are student-centered, inquiry-based, and technologically appropriate;
4. to participate in interdisciplinary and discipline-based research in the basic and applied sciences and in instructional research, particularly as an integral part of student development;
5. to complement internal research and education opportunities by substantial involvement with private industry, federal agencies, and other universities;
6. to involve faculty and students in demonstration and outreach projects that help to improve communities, human health, and the quality of life for individuals and families;
7. to provide training to students from other countries and to maintain beneficial and educational partnerships with institutions abroad.

DEPARTMENT OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES

The Department of Agricultural and Environmental Sciences consists of three areas: (1) Agricultural and Resource Economics (Graduate), (2) Animal, Poultry and Veterinary Sciences (Graduate and Undergraduate) and (3) Environmental, Natural Resource and Plant Sciences (Graduate and Undergraduate). The Animal, Poultry and Veterinary Sciences includes major programs in Animal and Poultry Sciences. The Environmental, Natural Resource and Plant Sciences includes three major programs: Environmental Sciences option (science, waste management and natural resources), Plant and Soil Sciences option (science, horticulture and business) and Forest Resources Option (forestry, fisheries, wildlife and ecology). The department offers Bachelors and Masters Degrees encompassing the three major areas. Some of the degrees are offered in collaboration with other universities under a 3+2 or a 3+3 agreement. Various

programs offered in the department combine in-depth study of natural sciences with the latest technical knowledge in preparation for a multitude of career options. Best of all, these options hold exceptional potential for opportunity and advancement in the years ahead. Graduate degrees are offered in: Agricultural Resource Economics, Animal and Poultry Sciences, Environmental Sciences and Plant and Soil Sciences.

Baccalaureate Programs:

Animal, Poultry and Veterinary Sciences

Options: **Business**
Pre-Vet/Science
Pre-Vet/Veterinary Science

Environmental, Natural Resource and Plant Sciences

Options: **Environmental Sciences**
Environmental Health
Plant and Soil Sciences
Natural Resource Management
Horticulture
Business
Forest Resources
Forestry, Fisheries, and Wildlife
Ecology

Master of Science

Majors: Agricultural and Resource Economics
Animal and Poultry Sciences
Environmental Sciences
Plant and Soil Sciences

ANIMAL, POULTRY AND VETERIANRY SCIENCES

The Animal, Poultry, and Veterinary Sciences program consists of options in Science, Veterinary Science, Business, and Wildlife. The undergraduate curriculum prepares the student for positions in agencies and organizations dealing with animal health, animal feed and nutrition, genetics and biotechnology, reproductive physiology, animal production and management, pharmaceutical, agricultural marketing, forestry, wildlife, biology, ecology, natural resources and many aspects of biomedical research. These options also prepare students to further their education in numerous graduate and professional programs (i.e., Veterinary Medicine, Medicine, Dentistry).

A graduate program leading to the Master of Science degree in Animal and Poultry Sciences is also offered. Graduate study provides the opportunity for greater breadth and depth in a selected area of specialization through course work, experiences in research methods and techniques, fieldwork experiences, and critical examination of the literature.

UNDERGRADUATE PROGRAM

The curriculum is designed to provide the student with a broad background for expertise in various phases of the animal, poultry, and veterinary sciences and biological and biomedical industries. This designed flexibility allows a student to elect one of four options leading to a Bachelor of Science degree in Animal, Poultry and Veterinary Sciences (Science option, Veterinary Science option, Business option or Wildlife option). In addition, the first three years of the curriculum is designed to meet the requirements for making application to a professional school of veterinary medicine. Thus the student shall elect one of these options prior to the end of the second semester of the sophomore year.

The Science Option: This option is designed to provide the student with formal training in animal, poultry, and veterinary science and other related biological sciences. The student is offered basic and advanced training in animal, poultry, and veterinary science, chemistry, biology and life science. Career opportunities through this program include, but are not limited to animal health, animal feed and nutrition, genetics and biotechnology, reproductive physiology, animal production and management, pharmaceutical, and many aspects of biological and biomedical research,. Opportunities for advanced graduate studies may exist in numerous graduate (i.e., animal or poultry sciences, food and nutritional sciences, agricultural economics, and many aspects of biological science) and professional programs (i.e., veterinary or human medicine).

Veterinary Science Option: The first three years of this pre-professional curriculum is designed to meet the minimum requirements for making application to an accredited school of veterinary medicine. Students accepted into the School of Veterinary Medicine at Tuskegee University after completing the veterinary science option in the Department of Agricultural and Environmental Sciences/Animal, Poultry and Veterinary Sciences program and successfully completing the first two years of professional training are eligible to receive a Bachelor of Science degree in Animal, Poultry and Veterinary Sciences with a concentration in veterinary sciences.

It should be pointed out that successful completion of the three-year pre-professional curriculum in the Animal, Poultry and Veterinary sciences does not guarantee that a student will be accepted into a school of veterinary medicine, since applicants are selected on competitive basis. Students interested in applying to the Tuskegee University School of Veterinary Medicine should review pre-professional requirements carefully in consultation with assigned academic advisors. Opportunities for advanced graduate studies may exist in numerous graduate programs (i.e., animal, poultry or veterinary sciences, food sciences, and many aspects of biological or biomedical sciences).

The Business Option: This option is designed to provide interest students with formal training in animal, poultry, and veterinary science and business. The student is offered basic and advanced training in animal, poultry, and veterinary science, in addition to training in economics and business management. Career opportunities through this program include, but are not limited to the pharmaceutical industry, all phases of management, sales and service in the food and fiber industry, agricultural marketing and statistic and extension. Opportunities for advanced graduate studies may exist in agricultural economics, business, agricultural education and livestock management.

The Wildlife Option: This option is designed to provide interested students with formal training in animal, poultry, and veterinary science and forestry/wildlife ecology. The first three years of the degree requirements for this option are completed at Tuskegee University and the final year at a selected cooperating university. Career opportunities through this program include, but are not limited to areas associated with ecology, and natural resources. Opportunities for advanced graduate studies may exist in

animal, poultry, or veterinary sciences, forestry, wildlife, biology, ecology, or natural resources.

MINOR in Animal, Poultry and Veterinary Sciences –

CAENS Animal Poultry and Veterinary Sciences

CAENS

Pre-Vet/Science Option (122 hours)

Semester	1st	2nd	Sem Com	Semester	1st	2nd	Sem Com
First Year	Cr	Cr		Second Year	Cr	Cr	
Orientation (Ind Dev) 100, 101	1	1		APSC 301 (Gen Poultry Sci)	3	-	
APSC 100 (APSC Oren)	3	-		CHEM 232, 234 (Gen Chem)	5	-	
APSC 201 (Intro to Anim Sci)	-	3		Chem 320, 322 (Org Chem)	-	5	
ENGL 101, 102 (Engl Comp)	3	3		ENGL Elective	3	-	
CHEM 231, 233 (Gen Chem & lab)	-	5		BIOL 230, 231 (Cell & Gene)	4	-	
MATH 107 or 207 (Alg or Cal)	4	-		HIST 104 (World Civil II)	3	-	
PHED (Physical Education)	1	1		ECON 201 (Prin Econ)	-	3	
HIST 103 (World Civil I)	3	-		FPAR/MUSC Elective	-	2	
SOSC Elective	3	-		CSCI 100/150 (Intro Comp Sci)	-	3	
PHIL Elective	-	3		PLSS (Gen Soil) 210	-	4	
				English Proficiency Examination			
Total	18	16		Total	18	17	

Semester	1st	2nd	Semester	1st	2nd
Third Year	Cr	Cr	Fourth Year	Cr	Cr
APSC 303 (Anim & Poul Nutr)	3	-	APSC Select (Level 1B)	3	-
APSC 402 (Seminar I)	1		APSC Select (Level 2)	3	3
APSC 530 (Dom Anima Anat)	-	4	APSC Select (Level 3)	-	3
APSC Select (Level 1A))	3	-	APSC 403 (Seminar II)	1	-
BIOL 301, 303 (Gen Micro)	-	4	EVSC 500 (Biostat I)	3	-
BIOL 309 (Genetics)	4	-	Free Elect (Advisors Approv)	6	3
CHEM 360 (Biochem I)	-	3	AGEC Elect	-	3
Phys 301, 303 (Elem Phys & Lab)	4	-			
PLSS 211(Gen Plant Sci)		3			
Total	15	14	Total	16	12

**May include Advance Aerospace Studies or Military Science

[a-e]These courses meet the Tuskegee University Core Curriculum requirements for Humanities/Fine Arts (14 credits), Social/Behavioral Sciences (12 credits), and Natural Sciences/Math (13 credits); b) Three credit hours selected from the following: PHIL 201, 203, 204, 205, 211, 212, 237 or 325. PHIL 325 is recommended; c) Two credit hours selected from the following: FPAR 101, 110, 203, 204 and MUSC 110, 111, 112, 113, 304, or 305; ; d) Three credit

hours selected from the following: ENGL 201, 203, 204, 205, 206, 207, 208, 220, 301, 302, 327, 330, or 331; e) Six credit hours selected from the following: POLS 200, 201; SOCI 240, 241; PSYC 270, 272, 273; ECON 201, 202, 203 or 204. ENGL 101, ENGL 102, MATH 107, APSC courses and departmental courses require a minimum grade of "C" s well as those serving as a prerequisite for courses which require a minimum grade of "C" in pre-requisites.
APSC Select Courses (Level 1A [3h] - APSC 302, 312, 405; Level 1B [3h]- APSC 304, 401, 407; Level 2 [6h] - APSC 501, 503, 510, 521, 531, 540, 550; Level 3 - Any APSC course, except APSC 450, not previously taken including, but not limited to, those listed in Levels 1-3 (beyond degree requirement), APSC 307, 451, 452, 505, 509).

Animal Poultry and Veterinary Sciences - CAENS
Pre-Vet/Vet Science Option (101 hours)

Semester	1st	2nd		Semester	1st	2nd	Sem Com
First Year	Cr	Cr	Sem Com	Second Year	Cr	Cr	
Orientation (Ind Dev) 100, 101	1	1		APSC 301 (Gen Poultry Sci)	3	-	
APSC 100 (APSC Oren)	3	-		Chem 232, 234 (Gen Chem)	5	-	
APSC 120 (Pre-Vet Oren	-	1		Chem 320, 322 (Org Chem)	-	5	
APSC 201 (Intro to Anim Sci)	-	3		ENGL Elective	3	-	
English (Comp) 101, 102	3	3		ECON 201 (Prin Econ)	-	3	
CHEM (Gen Chem) 231, 233	-	5		BIOL 230, 231 (Cell & Gene)	4	-	
Math (Alg or Cal) 107 or 207, 108	4	4		Hist 104 (World Civil II)	3	-	
**Physical Education	1	1		PHIL Elective	-	3	
Hist 103 (World Civil I)	3	-		FPAR/MUSC Elective	-	2	
SOSC Elective	3	-		Computer Sci (Intro) 100/150	-	3	
				English Proficiency Examination			
Total	18	18		Total	18	16	

Third Year 1st Sem	Cr	Third Year 2nd Sem	Cr
APSC 303 (Anim & Poul Nutr)	3	APSC 530 (Dom Anima Anat)	4
BIOL 309 (Genetics)	3	BIOL 301 (Gen Microbiol)	3
APSC Select	3	BIOL 303 (Gen Micro Lab)	1

Phys 301 (Elem Phys)	3	CHEM 360 (Biochem I)	3
Phys 303 (Elem Phys Lab)	1	CHEM 361 (Biochem I lab)	3
APSC 402 (Seminar)	1	APSC 403 (Seminar II)	1
BIOL 300+	3	Phys 302 (Elem Phys II)	3
		Phys 304 (Elem Phys II Lab)	1
Total	18	Total	17

**May include Advance Aerospace Studies or Military Science

^The successful completion of 1 year of TUSVM (minimum gap 2.0) must be met in order to fulfill degree requirements.

[a-e]These courses meet the Tuskegee University Core Curriculum requirements for Humanities/Fine Arts (14 credits), Social/Behavioral Sciences (12 credits), and Natural Sciences/Math (13 credits); b) Three credit hours selected from the following: PHIL 201, 203, 204, 205, 211, 212, 237 or 325. PHIL 325 is recommended; c) Two credit hours selected from the following: FPAR 101, 110, 203, 204 and MUSC 110, 111, 112, 113, 304, or 305; d) Three credit hours selected from the following: ENGL 201, 203, 204, 205, 206, 207, 208, 220, 301, 302, 327, 330, or 331; e) Six credit hours selected from the following: POLS 200, 201; SOCI 240, 241; PSYC 270, 272, 273; ECON 201, 202, 203 or 204. ENGL 101, ENGL 102, MATH 107 ENGL 101, ENGL 102, MATH 107, APSC courses and departmental courses require a minimum grade of "C" as well as those serving as a prerequisite for courses which require a minimum grade of "C" in prerequisites.

APSC Select Courses - ANY APSC course, except APSC 450, not previously taken, including but not limited to APSC 307, 451, 452, 505, 509, 302, 312, 405, 304, 401, 407, 501, 503, 510, 521, 531, 540, 550.

Animal Poultry and Veterinary Sciences - CAENS
Pre-Vet/Business Option (122 hours)

Semester First Year	1st Cr	2nd Cr	Sem Com	Semester Second Year	1st Cr	2nd Cr	Sem Com
Orientation (Ind Dev) 100, 101	1	1		APSC 301 (Gen Poultry Sci)	3	-	
APSC 100 (APSC Oren)	3	-		CHEM 221, 223 (Gen Org Chem)	4	-	
APSC 201 (Intro to Anim Sci)	-	3		CHEM 222, 224 (Gen Org Chem)	-	4	
English (Comp) 101, 102	3	3		ENGL Elective	3	-	
ECON 201 (Prin Econ)	-	3		BIOL 230, 231 (Cell & Gene)	4	-	
Computer Sci (Intro) 100/150	-	3		ECON 202 (Prin of Econ II)	3	-	
Math (Alg or Cal) 107 or 207	4	-		Free Elect (Advisors Approv)	-	3	
Physical Education	1	1		PHIL Elective	-	3	

HIST 103, 104 (World Civil I, II)	3	3	Chem 320, 322 (Org Chem)		5
**SOSC Elective(Principles) 201	3	-	EVSC/PLSS (Gen Soil) 210	-	4
FPAR/MUSC Elective	-	2	*English Proficiency Examination*		
Total	17	17	Total	14	17

Semester	1st	2nd	Semester	1st	2nd
Third Year	Cr	Cr	Fourth Year	Cr	Cr
APSC 303 (Anim & Poul Nutr)	3	-	APSC Select (Level 1B)	3	-
APSC 402 (Seminar)	1	-	APSC Select Level 2	3	3
APSCSelect (Level 1A))	3	-	APSC Select level 3	-	3
AGEC Elect	-	3	APSC 403 (Seminar II)	1	-
BIOL 300+	-	3	AGEC Elective	-	3
BUSN 211, 212	3	3	BUSN 311	3	-
Free Elective	-	3	BUSN Elective	3	3
Phys 301, 303 (Elem Phys)	4	-	EVSC 500 Biostat I	3	-
PLSS 211(Gen Plant Sci)	-	3	Free Elect (Advisors Approv.)		3
Total	14	14	Total	16	15

**May include Advance Aerospace Studies or Military Science ^May be substituted for an equivalent statistics course (i.e. MATH 504).

*Students interested in veterinary, graduate or professional school are encouraged to select courses to fulfill such requirements

(i.e. TUSVM requires additional courses in MATH, PHYS, BIOL, CHEM etc); but any university courses, with advisor approval, may fulfill the requirement for graduation.

[a-d]These courses meet the Tuskegee University Core Curriculum requirements for Humanities/Fine Arts (14 credits),Social/Behavioral Sciences (12 credits), and Natural Sciences/Math (13 credits); b) Three credit hours selected from the following: PHIL 201, 203, 204, 205, 211, 212, 237 or 325. PHIL 325 is recommended; c) Two credit hours selected from the following: FPAR 101, 110, 203, 204 and MUSC 110, 111, 112, 113, 304, or 305; d) Three credit hours selected from the following: ENGL 201, 203, 204, 205, 206, 207, 208, 220, 301, 302, 327, 330, or 331., ENGL 101, ENGL 102, MATH 107, APSC courses and departmental courses require a minimum grade of "C" as well as hose serving as a prerequisite for courses which require a minimum grade of "C" in pre-requisites.

APSC Select Courses - (Level 1A [3h] - APSC 302, 312, 405; Level 1B [3h]- APSC 304, 401, 407; Level 2 [6h] - APSC 501, 503, 510, 521, 531, 540, 550; Level 3 - ANY APSC course, except APSC 450, not previously taken, including but not limited to, those listed in Levels 1-3 (beyond degree requirement), APSC 307, 451, 452, 505, 509).

COURSES PRIMARILY FOR UNDERGRADUATE STUDENTS IN ANIMAL, POULTRY AND VETERIANRY SCIENCES

APSC 0100. ANIMAL AND POULTRY SCIENCES ORIENTATION 1st Semester. Lect. 2, Lab 3, 3 credits. Same as Plant and Soil Sciences 100. World food and fiber production - a survey of methodologies and culture. Prerequisite: None; recommended for Animal, Poultry, and Veterinary Sciences majors only.

APSC 0120. PRE-VETERINARY ORIENTATION. 2nd Semester. Lect. 1, 1 credit. A course designed to acquaint students with the professional school. The do's and don'ts of the profession of veterinary medicine. Prerequisite: 3.0/4.0 c GPA.

APSC 0201. INTRODUCTORY ANIMAL SCIENCE. 2nd Semester. Lect. 2, Lab 3, 3 credits. Introduction to live stock and associated industries; beef cattle, dairy cattle, swine, sheep, poultry, horses and goats.

APSC 0301. POULTRY SCIENCE. 1st Semester. Lect. 2, Lab 3, 3 credits. Principles and practices involved in egg production, broiler production, breeder flock operations and other facets of the poultry industry. Prerequisite: APSC 0201 "C".

APSC 0302. DAIRY SCIENCE. 1st Semester. Lect. 2, Lab 3, 3 credits. Fundamental concepts of dairy herd management and physiology of milk secretion as related to the development and production of milk and milk product. Prerequisite: APSC 0201 "C".

APSC 0303. ANIMAL AND POULTRY NUTRITION. 1st Semester. Lect. 2, Lab 3, 3 credits. Introduction to basic concepts of nutrition with emphasis on carbohydrate, protein, fat, mineral, vitamin, and energy requirements of various livestock and poultry classes. The course provides laboratory problems in formulating practical livestock and poultry rations as well as systems for feed analysis. Emphasis is also placed on efficient production and animal health as they relate to nutrition. Prerequisite: CHEM 0222 or 0320 "C".

APSC 0304. APPLIED ANIMAL NUTRITION. 2nd Semester. Lect. 2, Lab 3, 3 credits. A study of the nutrient requirements of animal and avian species nutritive value and characteristics of feedstuffs are studied as well as methods of formulating balanced nutrient intakes. Prerequisite: APSC 0201 "C".

APSC 307. COMPANION ANIMALS. 1st Semester. Lect. 3, 3 credits. This course focuses on companion dog, cat , and horse owners concerns re: health zoonoses, legal responsibilities, inbreeding, choice of breeds, behavioral problems and loss of companion animals. Prerequisite: APSC 0201 "C" or instructor's approval.

APSC 0312. BEEF AND GOAT PRODUCTION. 1st Semester. Lect. 2, Lab 3, 3 credits. Problems associated with management, production and other practical and scientific aspects of beef, sheep and goat industries. Lecture, demonstrations, discussions and field trips. Prerequisite: APSC 0201 "C".

APSC 0401. ANIMAL BREEDING. 2nd Semester. Lect. 3. Lab 0, 3 credits. Genetic fundamentals and application of principles to animal breeding, systems of mating and selection for livestock improvement and resistance to diseases. Prerequisite: BIOL 0309 "C".

APSC 0402. UNDERGRADUATE SEMINAR IN ANIMAL SCIENCE 1. 1st Semester. Lect. 1, 1 credit. Techniques to involve seminar material, preparation, organization and presentation of a seminar. Short oral reports of past and current research topics. Prerequisite: Minimum of Junior Standing.

APSC 0403. UNDERGRADUATE SEMINAR IN ANIMAL SCIENCE ii. 1st and 2nd Semester. Lect. 1, Lab 0, 1 credit. Oral reports required of past and current research topics in Animal and Poultry Science. Prerequisite: APSC 0402 "C".

APSC 0405. SWINE PRODUCTION. 1st Semester (even years). Lect. 2, Lab 3, 3 credits. Designed to acquaint students with the place of swine in the farm program; their selection, feeding, breeding, care and management. Prerequisite: APSC 0201 "C".

APSC 0407. HERD HEALTH AND ANIMAL DISEASES. 1st Semester. Lect. 2, Lab 1, 3 credits. Basic principles of health and disease of mammals and birds. This course is designed to acquaint the students with the fundamentals of farm animal herd health management in livestock and companion animal species. The mechanisms of the immune system and its response to disease, diagnostics of animal disease, and related topics are covered. Prerequisite: APSC 0201 "C".

APSC 0451. EQUINE PRODUCTION. 2nd Semester (odd years). Lect. 3, 3 credits. Art and Science of Equine Production. A study of the modern horse to include current situation, nutrition, reproduction, health, exercise, physiology, hoof care, facilities and farm design. Prerequisite: APSC 0201 "C".

APSC 0452. UNDERGRADUATE INTERNSHIP/RESEARCH IN ANIMAL, POULTRY, AND VETERINARY SCIENCE. 1st and 2nd Semesters, Summer. Lect. 3, Lab 3, 3 credits. This course provides on or off campus training in addition to current APC courses, to develop technical/research skills and understanding of an area of animal, poultry or veterinary science. Written reports required. Prerequisite: APSC 0201.

GRADUATE STUDIES IN ANIMAL AND POULTRY SCIENCES (APSC)

The Department of Agricultural and Environmental Sciences provides qualified students with the opportunity to obtain a Master of Science degree with a concentration in Nutrition, Breeding, and Physiology.

COURSES FOR ADVANCED UNDERGRADUATE AND GRADUATE STUDENTS

APSC 0501. INTERNATIONAL ANIMAL AGRICULTURE. 2nd Semester (even years). Lect. 3, 3 credits. Emphasis will be placed on all domestic species, utilizing tropical forages, grains and feed, international and animal production and marketing systems. Specific projects on lesser developed countries will be studied. Prerequisite: APSC 0201.

APSC 0503. PHYSIOLOGY OF REPRODUCTION. 1st Semester. Lect. 2, Lab 3, 3 credits. Study of sex determination to include differentiation of the gonads and the secondary sex organs. Anatomy and physiology of the male and female reproductive tract, the endocrinology of reproduction phenomena, fertilization, gestation, parturition lactation, sperm physiology, artificial insemination and factors influencing reproductive performance. Prerequisites: Senior or Graduate Students only; BIOL 305.

APSC 505. ISSUES IN WILDLIFE ECOLOGY AND NATURAL RESOURCE MANAGEMENT. 1st Semester, Lect. 3, 3 credits. Introduction to wildlife and conservation issues; relationship between humans and nature; exploration of current threats of species and habitats and novel solutions to these threats. Prerequisite: APSC 0201.

APSC 0509. HUMAN DIMENSIONS OF WILDLIFE MANAGEMENT. 2nd Semester. Lect. 3, 3 credits. This course focuses on wildlife values and provides a historical and contemporary human dimensions context for Wildlife Management. A presentation of concepts needed to set policies and establish a framework for decision making through a human dimensions approach to wildlife will be discussed. Same as PLSS 0509 and FORE 0509. Prerequisite: APSC 0201.

APSC 510. LAB ANIMAL MANAGEMENT. 2nd Semester, 2nd Semester. Lect. 2, Lab 3, 3 credits. This course is designed to focus on laboratory animal management, including certification programs associated with working with laboratory animals and concepts relevant to working with laboratory animals (dogs, cats, primates, rabbits, rats, and mice) re: history and purpose of lab animal science, research facility environments, lab animal breeding and husbandry, animal procurement, health and disease, and species specific information. Prerequisite: APSC 201.

APSC 521. MOLECULAR AND IMMUNOGENETICS. 2nd Semester (on demand). Lect. 3, Lab 3, 3 credits. Principles of immunology as applied to genetics with emphasis on genetic, control of cellular antigens, individual variation blood groups and disease transplantation and tolerance, immunogenetics in reproduction and differentiation and concepts of antibody formation. Prerequisite: Minimum of 15 credit hours, Biological Sciences to include genetics.

APSC 531. COMPANION ANIMAL NUTRITION. 2nd Semester (odd years). Lect. 3, 3 credits. The course addresses basic principles of nutrition; digestive physiology of companion animals; nutritional idiosyncrasies and importance of nutrition in various physiological states; pet food production and selection, and diet-related animal diseases. Students will be exposed to current research findings to illustrate development/refinement of nutritional principles. Prerequisite: APSC 307 or Graduate student standing.

APSC 540. ANIMAL BIOTECHNOLOGY. 1st Semester. Lect. 3, 3 credits. Introduction to scientific and technical understanding of animal biotechnology, commercial and ethical aspects of the biotechnology on urban and rural communities, potential advantages or threats of biotechnology and their impact on animal agriculture are presented.

APSC 0550. ADVANCED ANIMAL BREEDING AND QUANTITATIVE GENETICS. 2nd Semester (even years). Lect. 3, 3 credits. Emphasis will be placed on the study of forces that

changes genetic composition of biological populations, and the scientific application of principles of quantitative genetics in the development of breeding programs for animal and plant improvement. Prerequisite: APSC 401 and EVSC 0500 or Graduate Standing.

APSC 0595. SPECIAL PROBLEMS IN WILDLIFE ECOLOGY. 1st and 2nd Semesters. 1-3 credits. Special studies for advanced undergraduate and graduate students in wildlife ecology and management. Same as FORE 0595.

COURSES FOR GRADUATE STUDENTS (APSC)

APSC 600 ADVANCED REPRODUCTION PHYSIOLOGY. 1st Semester. Lect. 3, Lab 3, 4 credits. This course presents materials associated with recent advances in research mammalian reproduction to include; application of biotechnology and embryo transfer. Students will be required to conduct an approval research problem during the semester. Prerequisite: APSC 0530 or instructors approval.

APSC 601. NUTRITION TOXICOLOGY. 2nd Semester (odd years). Lect. 3, 3 credits. This course addresses basic principles of nutrition and toxicology; classification of toxicants; principles underlying their absorption, distribution, biotransformation and excretion; diagnostics and scope of problems and economic impact to toxicants; how different domestic livestock species differ in their response to toxicants and specific toxicants. The students will be exposed to current research findings to illustrate development/refinement of nutritional toxicology principles.

APSC 0602. RUMINOLOGY. 2nd Semester. Lect. 3, Lab 0, 3 credits. The nutrition of ruminants as contracted to nonruminants; with special emphasis on rumen physiology, nutrients absorption, and the role of rumen micro-organisms in feed utilization. Prerequisite: APSC 0520.

APSC 0603. ADVANCED ANIMAL AND POULTRY NUTRITION. 2nd Semester. Lect. 3, Lab 0, 3 credits. The nutrition of nonruminant animal and methods of design used in nutritional research. Prerequisite: APSC 520.

APSC 0604. GRADUATE SEMINAR IN ANIMAL SCIENCE. 2nd Semester. Lect. 3, Lab 0, 1 credit. Review of early animals and poultry literature and current research methods. Extensive reading and oral reports required. Two Semesters required.

APSC 0605. ANIMAL AND POOULTRY LITERATURE REVIEW. 1st and 2nd Semesters. Lect 1, Lab 0, 1 credit. Research methods and critical review of current animal and poultry literature. Presentation of methods of conduct literature review and computer information systems. Written reports required.

APSC 0621. IMMUNOGENETICS. 2nd Semester (on demand). Lect. 3, Lab 0, 3 credits. This course is a continuation of APSC 0521, further applying the principles of immunology as applied to genetics with emphasis on genetic, control of cellular antigens, individual variation blood

groups and disease transplantation and tolerance, immunogenetics in reproduction and differentiation and concepts of antibody formation. Prerequisite: APSC 0521.

APSC 0630. SPECIAL PROBLEMS IN ANIMAL SCIENCE. 1st and 2nd Semester. 1-Summer. 1-3 credits. Special studies for graduate students in Animal and Poultry Sciences. A presentation of topics not in regularly offered courses. Prerequisite: Permission of Instructor.

APSC 0700. RESEARCH IN ANIMAL SCIENCE. 1st and 2nd Semesters, Summer. 1-6 credits. Research in thesis project under direction of the major professor.

APSC 0752. CONTINUOUS REGISTRATION. 1st and 2nd Semesters, Summer. 0 credits. Restricted to Graduate students who have taken all courses including APSC 700 and need to use the service and resources of the University to complete their theses or reading for graduate examinations. Students may have a maximum of two registrations only; afterward registration as a regular graduate student will be required until the degree requirements have been completed. Prerequisite: Permission of major advisor.

APSC 0754. CANDIDATE FOR DEGREE ONLY. 1st and 2nd Semesters, Summer. 0 credits. Restricted to graduate students who have completed all requirements for graduate degree including final oral or comprehensive examination, submission of thesis and approval of the thesis by the Office of the Graduate Programs. Students will be permitted to register in the category one at a time.

AGRICULTURAL AND RESOURCE ECONOMICS (AGEC)

The Agricultural and Resource Economics seeks to facilitate the development of competencies in economic analysis of agriculture, food and fiber systems. The program admits students with B.S. degrees in agricultural sciences, environmental sciences, or natural resources general economics, and other areas related to Agricultural Economics. The program focuses on (1) agricultural production and agribusiness management, (2) natural resource economics, and (3) rural/international economic development.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATE STUDENTS

AGEC 0501. ECONOMIC PLANNING. 1st Semester. Lect. 3, 3 credits. Relation of resources to economic growth, including regional problems; planning economic development with emphasis on selected resource use in agriculture and economic progress in developing countries.

AGEC 0502. NATURAL RESOURCE ECONOMICS. 1st Semester. Lect. 3, 3 credits. Economic principles applied to problems of natural resource use productivity, development and conservation. Emphasis on key agriculture resources.

AGEC 0503. PRODUCTION ECONOMICS. 2nd Semester. Lect. 3, 3 credits. Economic principles of production. Analysis of product and factor relationships in production. Factor supply and demand analysis. Management concepts and choice criteria. Agricultural economic

applications to real life situations. Production and planning over time. Introduction to linear programming.

AGEC 0505. FARM MANAGEMENT. 2nd Semester. Lect. 3, 3 credits. Economic principles applied to organization and operations of farms; introduction to farm financial management techniques.

AGEC 0513. AGRICULTURAL PRICES. 1st Semester. Lect. 3, 3 credits. Use of economic theory and quantitative methods to solve problems in agricultural price analysis, problem formulation, forecasting and model evaluation of structural economic relations.

AGEC 0515. MARKETING OF AGRICULTURAL PRODUCTS. 2nd Semester. Lect. 3, 3 credits. The U.S. agricultural marketing system and the changes in the marketing structure and practice. Marketing margins, and derived demand; supply and demand relationship, elasticities; production and marketing information.

AGEC 0553. MACROECONOMICS AND APPLICATIONS IN AGRICULTURE. 2nd Semester. Lect. 3, 3 credits. An advanced look at theory and applications to agriculture of the circular flow framework, supply and demand in the macro-economy, labor and factor markets, aggregate real supply and demand analysis; effects of fiscal and monetary policy on the price level, real output, and unemployment; budget deficits, and stability of the banking system.

COURSES FOR GRADUATE STUDENTS

AGEC 0600. SEMINAR: CURRENT ISSUES IN AGRICULTURAL ECONOMICS. 1st and 2nd Semesters. Lect. 1, 1-3 credits. Oral reports and discussion on current issues in agricultural economics.

AGEC 0602. AGRICULTURAL POLICY IN DEVELOPING COUNTRIES. 1st Semester. Lect. 3, 3 credits. Agriculture in the structure of developing nations; its role in economic development; historical experience and models; sectoral policies relating to prices, inputs, productivity, and marketing,; international inputs into agricultural development.

AGEC 0604. MICROECONOMICS. THEORY AND APPLICATIONS TO AGRICULTURE. 1st Semester. Lect. 3, 3 credits. Advanced topics in consumer and producer theory and applications to agriculture, equilibrium models and their application to agriculture, externalities and public goods, welfare, alternative market structures, simple dynamic models and resource depletion, choice and uncertainty.

AGEC 0613. FINANCIAL MANAGEMENT IN AGRICULTURE. FINANCIAL MANAGEMENT IN AGRICULTURE. 1st Semester. Lect. 3, 3 credits. Principles of investment decision and financial control relating to management of cost, credit, insurance and debt. Use of financial management principles in the analysis of problems such as budgeting, investment, marketing and savings.

AGEC 0616. QUANTITATIVE METHODS. 1st Semester. Lect. 3, 3 credits. Statistical methods and their applications; probability density and distribution functions as background studying principles of economic model construction. Emphasis on econometrics modeling and analyses; decision problems programming, scheduling and network; special topics of current interest.

AGEC 0618. AGRICULTURAL POLICY, 2nd Semester. Lect. 3, 3 credits. Public issues involving agriculture and rural development topics relating to price controls, nutrition policy, food safety, farm labor, use of finite recourses, marketing orders, production controls, etc.

AGEC 0620. ADVANCED MARKETING OF AGRICULTURAL PRODUCTS. 1st Semester. Lect. 3, 3 credits. Principles of industrial marketing and their relevance to agricultural marketing; standardization of diversified farm products; market differentiation; competitive structure and performance of the marketing system and the role of marketing research; marketing in economic development. Prerequisite: AGEC 0515.

AGEC 0622. RESEARCH METHODOLOGY. 1st Semester. Lect. 3, 3 credits. Selection, planning and conduct of research; alternative approaches, role of theory, beliefs and values. Critical appraisal of research tools and studies, empirical development, presentation and defense of researchable problems by students. Prerequisite: one year of graduate work, including statistics.

AGEC 0630. SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS. 1ST and 2nd Semesters, Summer. 1-6 credits. Research in thesis problems under the direction of a major advisor. Students in this program will be required to select research problems on a specific topic concentrating on the investigation of problems of Agricultural Economics.

AGEC 0752. CONTINUOUS REGISTRATION. 1st and 2nd Semesters, Summer. 0 credits. Restricted to graduate students who have taken all courses including AGEC 700 and need to use the service and resources of the University to complete their theses or reading for graduate examinations. Students may have a maximum of two registrations only; afterward registration as a regular graduate student will be required until the degree requirements have been completed. Prerequisite: Permission of major advisor.

AGEC 0754. CANDIDATE FOR DEGREE ONLY. 1st and 2nd Semesters, Summer. 0 credits. 1st and 2nd Semesters, Summer. 0 credits. Restricted to graduate students who have completed all requirements for graduate degree including final oral or comprehensive examination, submission of thesis and approval of the thesis by the Office of the Graduate Programs. Students will be permitted to register in the category one time only.

ENVIRONMENTAL, NATURAL RESOURCE AND PLANT SCIENCES

UNDERGRADUATE PROGRAM

The object of the program is to provide and undergraduate curriculum in environmental sciences with two options and opportunities for students in other majors to take a minor in

environmental sciences. This is a multi disciplinary curriculum designed to provide students with a broad background in the study of factors related to the environment. The program is designed to prepare students for careers in the environmental sciences and for continuing studies in various phases of environmental sciences. In the first two years, courses are designed to satisfy most of the minimum requirements for the natural and agricultural sciences. Courses offered cover a wide range of areas and has the flexibility to allow students to enter into the range of emerging environmental fields.

THE SCIENCE OPTION: This option is designed to provide interested students with training which will allow them to go into the environmental science fields. It also provides students with a strong background in the sciences. A bachelor of science in this option will prepare students for careers in waste management, analytical services and state and federal research and regulatory fields, and professional and graduate degree programs.

THE NATURAL RESOURCE MANAGEMENT OPTION: This option is designed for students interested in management, policy, and assessment of natural resources. The program offers a strong background in both the sciences and social sciences to allow students the knowledge base necessary for understanding the environment and the skills to manage natural resources. Students graduating from this option have a wide range of employment opportunities in the state, federal, international and private industries. Job opportunities include managing parks, resorts and environmental impact assessment, and professional and graduate degree programs.

ENVIRONMENTAL SCIENCES MINOR/OPTION: The minor/option in Environmental Sciences is offered for students in Departments of Agricultural Sciences, Biology, and Chemistry. Students who are interested in a minor/option in environmental sciences will be required to take at least 18 hours in selected courses, in addition to the requirements of their respective majors. Students selecting minors need approval from participating department.

GRADUATE PRAOGRAM

Under this program as student is allowed to pursue graduate studies in environmental problems. In addition to the graduate program in environmental sciences, interdepartmental service programs in radiation biology and bio-statistics are designed to teach, provide facilities and technical assistance for research in biological application of isotopes, radiation, and statistics.

COURSES FOR UNDERGRADUATE STUDENTS IN ENVIRONMENTAL SCIENCES (EVSC)

EVSC 0100. ENVIRONMENTAL SCIENCES ORIENTATION. 1st Semester. Lect. 2, Lab 3, 2 credits. World food and fiber production - a survey of methodologies and cultures.

EVSC 0201. INTRODUCTION TO GEOLOGY. 1st Semester. Lect. 2, Lab 3, 3 credits. The materials of the earth's crust, the processes that product and modify them and the development of the earth through time. Same as PLSS 0201.

EVSC 0205. INTRODUCTION TO FORESTRY. 1st Semester. Lect. 2, Lab 3, 3 credits. Principles of use and management of forest land in relation to the needs of society for wood, water, forage, wildlife and recreation. Impacts of forest production on environmental quality. Same as PLSS 0205, FORE 0205.

EVSC 0207. INTRODUCTION TO ENVIRONMENTAL HEALTH SCIENCES. 1st Semester. Lect. 3, 3 credits. This course is an introduction to environmental health concepts and methods. Students will learn how to use research tools and other resources to identify, verify and quantify environmental and public factors that impact the health of our environment. Students will participate in discussions, cases taken from field experiences, and other leading modalities designed to give them a broader understanding and appreciation for environmental health. Prerequisites: None

EVSC 0210. GENERAL SOIL SCIENCE. 2nd Semester. Lect. 3, Lab 3, 4 credits. Introduction to the nature and properties of soils including origin, classification, microbiology, chemistry, physics, fertility and management,. Prerequisite: CHEM 231. Same as PLSS 0210.

CURRICULUM IN ENVIRONMENTAL, NATURAL RESOURCES AND PLANT SCIENCES – CAENS

Business Option (122 hours)

Semester	1st	2nd	Sem Com	Semester	1st	2nd	Sem Com
First Year	Cr	Cr		Second Year	Cr	Cr	
Orientation (Ind Dev) 100	1			**Chemistry (Gen) 221,	3		
Orientation (Ind Dev) 101	1			**Chemistry (Gen) 223	1		
PLSS (World Food, Fiber) 100	2	-		**222	3		
**English (Comp) 101	3			**224	1		
**English (Comp) 102	3			PLSS (Gen Soil) 210	4		
PLSS 201 (Intro to Geol)	3			PLSS 300 (Intro to Biotech)	3	-	
**Math (Alg or Cal) 107 or 207	4			PLSS 211 (Gen Plant Sci)	3	3	
**Hist 103	3			**[a]Humanities & Fine Arts	2		
**Hist 104	3			**Computer Sci (Intro) 100	3		
**ECON (Principles) 201	3						
**ECON (Principles) 202	3			**Computer Sci (Intro) 100	3	3	
*Physical Education	1						
*Physical Education	1			** ENGL 203/204 *English Proficiency Examination*	3	-	
Total	16	15		Total	16	16	

	Semester				Semester	
	Cr	Cr			Cr	Cr
Third Year	1st	2nd		Fourth Year	1st	2nd
ANPO (Intro 201	-	3		Bus 351 (Man Info Sys)	3	-

Bus 102 (Mgt Oren)	3	-	EVSC 500 or Econ 300	3	-
Bus 311 (Marketing)	-	3	PLSS Elect****	6	9
****PLSS Elect	9	6	***Free Elect	3	3
Bus Elect	3	-	PLSS/EVSC (Seminar) 400	1	1
Physics (Elem Gen) 301, 303	-	4	Elect Business		3
Total	15	16	Total	16	16

***May include advanced Aerospace Studies or Military Science**
*****Advisor's approval Required**
****Core Requirement; [a]Humanities/Fine Arts: Select at least two credit from the following courses: ; FPAR 101, 110, 203, 204; MUSC 110, 110, 111, 112, 113, 304, 305**
******PLSS Electives--30 hours required; distribution follows: Natural Resources Management related courses (12 hours): PLSS/EVSC 425, 525, 510, 521, 555, 590; EVSC 404, 504, 507, 517; FORE 205, 415; Horticulture and Crops Related Courses (9 hours): PLSS 250, 311, 315, 340, 522, 530, 532, 565, 401, 501, 525, 531, 595,; Biology 309 Agric. Economics and related Courses (9 hours): AGEC 501, 502, 503, 505, 513, 515**
Minimum grade for PLSS (Plant and Soil Sciences Courses), English 101, 102 is "C".

Environmental, Natural Resources and Plant Sciences - CAENS
Environmental Science Option (122 hours)

	Semester 1st Cr	2nd Cr	Sem Com		Semester 1st Cr	2nd Cr	Sem Com
First Year				Second Year			
Orientation (Ind Dev) 100/101	1	1		Biology (Env Biol) 140, 141	-	4	
EVSC/PLSS (Orientation) 100	2	-		**Chem (General) 231, 233	5	-	
**English 101[a], 102	3	3		**Chem (General) 232, 234	-	5	
**Computer Sci (Intro) 100	-	3		EVSC/PLSS (Gen Soil) 210	-	4	
EVSC (Intro to Geo) 201	3	-		**[a]Hum & Fine Arts	2	-	
**History (World Civ) 103, 104	3	3		**[b]Soc & Behavioral Sci.	3	3	
**Math (Alg and Trig) 107, 108	4	4		**ENGL 203/204/327	3	-	
*Physical Education	1	1		**PHIL 201/203 /204	3	-	
				English Proficiency Examination			
Total	17	15		Total	16	16	

Semester	1st Cr	2nd Cr	Semester	1st Cr	2nd Cr
Third Year			Fourth Year		
Biology (Ecology) 311	-	4	EVSC (Soil Micro) 590	3	-
EVSC (Soil Chem) 555	3	-	EVSC 500 (Bio Stat I)	3	-

EVSC (404, 504)	3	3	EVSC Elect**** (see below)	6	9
EVSC Elect**** (see below)	-	6	CENG (Env Eng) 450	3	-
PLSS 211	-	3	***Free Elective	-	6
Physics (Elem Gen) 301, 303	4		EVSC/PLSS (Seminar) 400	1	1
Chem (Organic) 320, 322	5				
EVSC Internship*****					
Total	15	16	Total	16	16

*May include advanced Aerospace Studies or Military Science

***Advisor's approval required

****Core Requirement: [a]Humanities/Fine Arts:** Select at least two credit from the following courses: FPAR 101, 110, 203, 204; MUSC 110, 110, 111, 112, 113, 304, 305

[b]Social and Behavioral Sciences: Select six credits from the following courses POLS 200, 201, SOCI 240, 241; PSCY270, 272; ECON 201, 202 :

******EVSC Electives--Choose 18 hours** :Soils, Crops and related Courses PLSS 300, 315, 425, 510, 520, 521, 525, 530, 595; Biology and related courses :

BIOL 120, 230, 301, 303, 353, 513, 523, 524, 556, 558; Chemistry: CHEM 307, 308, 321, 323, 541; Environmental Sciences: EVSC 207,502, 507, 510, 515, 507, 517, 521, 531, 532, 595; Food Science and related courses :FDSC 403, 507: Agric Economics related courses:: AGEC501, 502, 513, 515; Forestry and related courses: FORE 205, 215, 401, 305, 405, 410, 505, 509, 5995

*****Internship required for all Environmental Sciences majors

Minimum grade for EVSC (Environmental Sciences Courses) and English 101, 102 is **"C"**

Curriculum in Environmental, Natural Resources Plant Sciences - CAENS
Horticulture Option (123 hours)

	Semester 1st Cr	Semester 2nd Cr	Sem Com		Semester 1st Cr	Semester 2nd Cr	Sem Com
First Year				**Second Year**			
Orientation (Ind Dev) 100	1	1		**Chem (Gen Org) 221, 223	4	-	
PLSS (World Food, Fiber) 100	2	-		**Chem (Gen Org) 222, 224	-	4	
**English (Comp) 101, 102	3	3		PLSS 250 (Greenhouse)	3	-	
**Hist 103/104	3	3		**Computer Sci (Intro) 100	3	-	
PLSS (Gen Plant) 211	-	3		***[a]Hum & Fine Arts	2	-	
**Math (Alg or Cal) 107 or 207	4	-		***[b]Soc & Behavioral Sci.	3	3	
PLSS (Gen Soil) 210	-	4		**Economics (Prin) 201		3	
PLSS 201 (Intro to Geol)	3			**PHIL 203/204	-	3	
*Physical Education		1		**ENGL 203/204/327	-	3	

			*Physical Education	1	
			English Proficiency Examination		
Total	16	15	Total	16	16
	Semester			Semester	
	1st Cr	2nd Cr		1st Cr	2nd Cr
Third Year			**Fourth Year**		
APSC (Intro) 201	-	3	EVSC 500 (Bio Stat)	3	-
Biology (Botany) 206	4	-	PLSS 525 (Fert & Nutr) 525	-	3
PLSS 300 (Intro Biotech)	3	-	PLSS (Plant Path) 520	3	
PLSS 315 (Weed Science)	3	-	PLSS/EVSC 400 (Seminar)	1	1
Physics (Elem Gen) 301, 303	-	4	***Free Elect	-	6
****PLSS Electives	6	9	****PLSS (Electives)	9	6
Total	16	16	Total	16	16

*May include advanced Aerospace Studies or Military Science

***Advisor's approval required

****Core Requirement:** [a]**Humanities/Fine Arts:** Select at least two credit from the following courses: FPAR 101, 110, 203, 204; MUSC 110, 110, 111, 112, 113, 304, 305

[b]**Social and Behavioral Sciences:** Select six credits from the following courses POLS 200, 201, SOCI 240, 241; PSCY270, 272; ECON 201, 202

****PLSS Electives—30 hours required: Distributed as Follows**

Soils Courses (6 hours) PLSS	425, 521, 510, 555, 590, 595
Horticulture & Related Courses (12 hrs)	311, 340, 390, 522, 531, 532, 533
Crops & related Courses (12 hrs)	401, 501, 513, 520, 530, 565, 531, 595, Biol 309, 311

Minimum grade for PLSS (Plant and Soil Sciences Courses), Reading 101, 102, and English 101, 102 is **"C**

Curriculum in Environmental, Natural Resources and Plant Sciences - CAENS
Plant and Science Option (120 hours)

	Semester				Semester	
	1st Cr	2nd Cr	Sem Com	1st Cr	2nd Cr	Sem Com
First Year				Second Year		
Orientation (Ind Dev) 100	1	1		**Chemistry (Gen) 231, 233	5	-
PLSS (World Food, Fiber) 100	2	-		**Chemistry (Gen) 232, 234	-	5
**English (Comp) 101, 102	3	3		PLSS 300 (Intro to Biotech)	3	-
**Math (Alg or Cal) 107 or 207	4	-		PLSS (Gen Soil) 210	-	4

*Physical Education	1	1	**[a]Hum & Fine Arts	2	
**Computer Sci (Intro) 100	-	3	**[b]Soc & Behavioral Sci.	3	3
PLSS 201 (Intro to Geol)	3	-	**ENGL 203/204/327	3	
**Hist 103/104	3	3	**PHIL 201/203/204	-	3
PLSS (Gen Plant) 211	-	3			
			English Proficiency Examination		
Total	17	16	Total	16	15

	Semester			Semester	
	1st Cr	2nd Cr		1st Cr	2nd Cr
Third Year			Fourth Year		
ANPO (Intro) 201		3	EVSC (Bio Stat) 500	3	-
Biology (Botany) 206	4	-	****PLSS Elect see below)	9	9
Chem (Org) 320, 322	5	-	ENGL 203/204		3
****PLSS Elect (See below)	6	6	***Free Elect	3	3
PLSS 525 (Fert & Nutr)	-	3	PLSS/EVSC Seminar 400	1	1
Physics (Elem Gen) 301, 303		4			
Total	15	16	Total	16	16

*May include advanced Aerospace Studies or Military Science

****Core Requirement**

[a]Humanities/Fine Arts: Select at least two credit from the following courses: FPAR 101, 110, 203, 204; MUSC 110, 110, 111, 112, 113, 304, 305

[b]Social and Behavioral Sciences: Select six credits from the following courses POLS 200, 201, SOCI 240, 241; PSCY270, 272; ECON 201, 202

***Advisor's approval required, May include advanced Aerospace Studies or Military Science

******PLSS Electives—30 hours required: Distributed as Follows:**

Soils & Nat. Res. related courses (15 hours): PLSS/EVSC 404, 425, 521, 555, 507, 590, 595A; BIOL 311; FORE

Crops & Hort. related courses (15hrs) : PLSS 250, 311, 315, 340, 401, 501, 513, 520, 522, 530, 531, 532 565, 595; BIOL 309

Minimum grade for PLSS (Plant and Soil Science Courses), Reading 101, 102, and English 101, 102 is **"C"**.

Environmental, Natural Resources and Plant Sciences - CAENS
Environmental Health Option (124 hours)

Semester	1st	2nd		Semester	1st	2nd	
First Year	Cr	Cr	Sem Com	Second Year	Cr	Cr	Sem Com
Orientation (Ind Dev) 100/101	1	1		Biology (Env Biol) 140, 141	-	4	

EVSC/PLSS (Orientation) 100	2	-	**Chem (General) 231, 233	5	-
**English 101[a], 102	3	3	**Chem (General) 232, 234	-	5
**Computer Sci (Intro) 100	-	3	EVSC/PLSS (Gen Soil) 210	-	4
EVSC (Intro to Geo) 201	3	-	**[a]Hum & Fine Arts	2	-
**History (World Civ) 103, 104	3	3	**[b]Soc & Behavioral Sci.	3	3
**Math (Alg and Trig) 107, 108	4	4	**ENGL 205/206	3	-
*Physical Education	1	1	**PHIL 201/203 /204	3	-
			English Proficiency Examination		
Total	17	15	Total	16	16
Semester	1st	2nd	Semester	1st	2nd
Third Year	Cr	Cr	Fourth Year	Cr	Cr
Biology (Ecology) 311	-	4	EVSC (Soil Micro) 590	3	-
Chem (Organic) 320, 322	5		EVSC 500 (Bio Stat I)	3	-
EVSC (404, 504)	3	3	EVSC Elect**** (see below)	6	6
EVSC Elect**** (see below)	-	6	EVSC 0520 (Intro to Epid)	3	
ENGL 204 or 203 (Tech Writ)	-	3	EVSC 522 (Intro to Toxicol)		3
Physics (Elem Gen) 301, 303	4	-	CENG (Env Eng) 450	3	-
EVSC 207 (Intro to Envir. Health)	3	-	***Free Elective	-	3
			EVSC 0401(EH Seminar)	1	1
EVSC Internship*****			EVSC 0555 (Soil Chem)	3	-
Total	15	16	Total	16	16

*May include advanced Aerospace Studies or Military Science

****Core Requirement**

[a]Humanities/Fine Arts: Select at least two credit from the following courses: FPAR 101, 110, 203, 204; MUSC 110, 110, 111, 112, 113, 304, 305

[b]Social and Behavioral Sciences: Select six credits from the following courses POLS 200, 201, SOCI 240, 241; PSCY270, 272; ECON 201, 202

***Advisor's approval required

*****Internship required for all Environmental Sciences majors

******EVSC Electives--Choose 18 hours**

Soils, Crops and related Courses: PLSS 300, 315, 425, 510, 520, 521, 525, 530, 595

Biology and related courses: BIOL 120, 230, 301, 303, 353, 513, 523, 524, 556, 558

Chemistry: CHEM 307, 308, 321, 323, 541

Environmental Sciences: EVSC 502, 507, 510, 515, 507, 517, 521, 531, 532, 595

Food Science and related courses: FDSC 403, 507
Agric Economics related courses: AGEC 501, 502, 513, 515
Forestry and FORE 205, 215, 401, 305, 405, 410, 505, 509, 5995
Minimum grade for EVSC (Environmental Sciences Courses) and English 101, 102 is **"C"**

Environmental, Natural Resources and Plant Sciences - CAENS
Forestry/Wildlife/Fisheries Option
Three-Two program

Semester First Year	1st Cr	2nd Cr	Sem Com	Semester Second Year	1st Cr	2nd Cr	Sem Com
Orientation (Ind Dev) 100/101	1	1		**Chem (General) 231, 233	5	-	
EVSC/PLSS (Orientation) 100	2	-		**Chem (General) 232, 234	-	5	
**English 101[a], 102	3	3		**CSCI 100 (Computer Sci)	-	3	
**BOL 120, 121 (Organismic Biol)	-	4		EVSC/PLSS (Gen Soil) 210	-	4	
EVSC (Intro to Geo) 201	3	-		MATH 108 (Alg/Trig II)	4	-	
**[a]Hum & Fine Arts	-	2		FORE 205 (Intro to Forestry)	3	-	
**History (World Civ) 103, 104	3	3		**[b]Soc & Behavioral Sci.	3	3	
*Physical Education	1	-		Physical Education	-	1	
**PHIL 201/203 /204	-	3		*English Proficiency Examination*			
Total	17	16		Total	16	16	
**Math (Alg and Trig) 107,	4						
Third Year (Ist Semester)		Cr		Third Year (2nd Semester)		Cr	
Biology 206 (General Botany)	4	-		BIOL 311 (General Ecology)		4	
BIOL 512 (General Entomology)	4	-		PLSS 211 (Gen Plant Sci.)		3	
ENGL 327 (Public Speaking)	3	-		EVSC 400 (Seminar)		1	
ENGL 204 or 203 (Tech Writ)	3	-		EVSC 500 /ECON 300 (Stats)		3	
		-		FORE 215 (Dendrology)		3	
				***FORE Elect		3	
Total	17			Total		17	

*May include advanced Aerospace Studies or Military Science
****Core Requirement**

[a]**Humanities/Fine Arts:** Select at least two credit from the following courses: FPAR 101, 110, 203, 204; MUSC 110, 110, 111, 112, 113, 304, 305
[b]**Social and Behavioral Sciences:** Select six credits from the following courses: POLS 200, 201, SOCI 240, 241; PSCY270, 272; ECON 201, 202
***FNR Electives: CHEM 320, 322,360, 361, EVSC 404, 504, FORE 301, 302, 402, 505, 509, Math 207
Minimum C grade required for ALL major courses: FORE, BIOL, PLSS
Specific coursework may vary depending upon the partner school pre-requisites.

ENVIRONMENTAL SCIENCES (EVSC)

COURSES FOR UNDERGRADUATE STUDENTS IN ENVIRONMENTAL SCIENCES (EVSC)

EVSC 0301. SILVICS. 1st Semester. Lect. 2, Lab 3, 3 credits. Methods of establishment, composition, growth, quality and treatment of forest stands. Prerequisite: PLSS 0215. Same as FORE 0301, PLSS 0301.

EVSC 0302. SILVICULTURE. 2nd Semester. Lect. 3, Lab 3, 4 credits. Theories and practices of controlling forest establishment, composition and growth in order to maintain or enhance the productivity or appearance of the forest. Prerequisite: PLSS 0215. Same as FORE 0301, PLSS 0301.

EVSC 0400. SEMINAR. Lect. 1, 1 credit. Oral reports and discussion of current issues in environmental science.

EVSC 0401. FOREST PROTECTION. 1st Semester. Lect. 3, Lab 3, 4 credits. A description of destruction of the forest ecosystem and methods of protecting timber from these destructive forces. Prerequisites: EVSC 0301 and 0311. Same as FORE 0401.

EVSC 0402. MENSURATION. 2nd Semester. Lect. 2, Lab 3, 3 credits. Measurement of tree diameters and heights; determine volume of standing timbers or products cut there- from; and determine and predict rates of forest growth. Prerequisites: EVSC 0500, EVSC 0302. Same as FORE 0402.

EVSC 0404. ENVIRONMENTAL SCIENCE 1. 1st Semester. Lect. 3, 3 credits. A survey of current issues, and corrective policies, including environmental regulations and market based policy alternatives, population pressures and natural resources scarcity, degradation depletion, biological diversity, and ethics concerns will be discussed from a policy perspective.

COURSES FOR ADVANCED UNDERGRADUATE AND GRADUATE STUDENTS (EVSC)

EVSC 0500. BIO-STATISTICS 1: 1st Semester. Lect. 2, Lab 3, 3 credits. Statistical methods in scientific research. An introductory course in statistics dealing with the application of various methods of analyzing research data to include sampling, randomization, the normal distribution,

"t" test, linear regression, correlation, Chi-Square, and analysis of variance of random design. Laboratory assignments require the use of pocket calculators and the University's time share computer.

EVSC 501. BIO-STATISTICS II. 1st Semester. Lect. 2, Lab 3, 3 credits. The application of advanced statistical methods in analyzing biological data to include analysis of two-way experiments, factorial experiments, covariance analysis, least-square analysis with unequal subclass numbers and curvilinear regression. Laboratory assignments require the use of the University's time share computer and departmental microcomputers. Prerequisites: EVSC 0500 or Permission of instructor.

EVSC 0504. ENVIRONMENTAL SCIENCE II. 2nd Semester. Lect. 3, 3 credits. Problems related to the presence of biologically active substances and potential hazardous synthetic chemicals in the environments. Strategies in minimization and management of these hazards will be discussed. Pesticides, radiation hazards, industrial chemical and potential biological hazards will be considered. Prerequisites: CHEM 0320 or Permission of Instructor.

EVSC 0505. ISSUES IN WILDLIFE ECOLOGY AND NATURAL RESOURCE MANAGEMENT. 1st semester. Lect. 3, 3 credits. Introduction to wildlife and conservation issues; relationships between humans and nature; exploration of current threats of species and habitats and novel solutions to these threats. Same as FORE 0505, PLSS 0505.

EVSC 0507. INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS. 1st Semester. Lect. 2, Lab 1, 3 credits. Introductions to GIS concepts. Basic theoretical concepts, computer catography, database systems, getting maps into digital form and geocoding. Familiarity with Arc-GIS software.

EVSC 0517. SPECIAL STUDIES IN GIS. 2nd Semester. Lect. 2, Lab 1, 3 credits. Research applications of GIS with special emphasis on complex spatial analysis of soil, water. Prerequisite EVSC 0507.

EVSC 0520. INTRODUCTION TO EPIDEMIOLOGY. 1st. Semester, Lect. 3, 3 credits. This course is designed to teach students how to study the determinants and distribution of disease frequency in human populations, along with the associated risk factors. Students will study how to design a research project, ethics involving data collection and dissemination, descriptive epidemiology, quantitative measures and terminology. Completion of this course will allow the students to devise and applying epidemiologic principles to address relevant environmental health problems in their communities. Prerequisites: EVSC 0404. BIOL 140 or the permission of the instructor.

EVSC 0522. INTRODUCTION TO TOXICOLOGY. 2nd Semester. Lect. 3, 3 credits. This course is designed to expose students to the sciences of toxins (poisons) and their adverse effects on biological systems and the environment. Course content will cover the history, concepts, principles, mechanisms and kinetics of toxicology, as well as the types of toxicity/toxicants, risk assessment, absorption, distribution, and metabolism. The effects of toxins on environmental

systems will be covered in case studies, and lectures will focus on mammalian toxicology. Prerequisites: 100-200 level course in chemistry, biology, etc. or the permission of the instructor.

EVSC 0555. SOIL CHEMISTRY. 1st Semester, even years. Lect. 3, 3 credits. Theory and practice of the inorganic chemical reactions involved in soil development and nutrient availability and cycling; topics include chemical ion exchange equilibria and kinetics, colloidal systems, solubility diagrams and oxidation reduction. Prerequisites: CHEM 0231, 0232, PLSS 0210. Same as PLSS 0555.

EVSC 0590. SOIL/ENVIRONMENTAL MICROBIOLOGY. 1st Semester, Odd year. Lect. 3, 3 credits. Description, location, taxonomy, abundance and significance of the major groups of soil microorganisms, major biochemical transformations carried out by the organisms; major biochemical transformations carried out by the soil micro flora and their relationships to soil fertility and environmental pollution are examined. Prerequisites: CHEM 0320 or Permission of Instructor. Same as PLSS 0590.

EVSC 0592. RESEARCH METHODS ORIENTATION. 1st Semester. 1 credit. This course is an orientation to the methods of research for graduate students and undergraduate students involved in research. The guest lecture and discussion-based course assists students with the following research task: developing a resume/vita and statement of research interest; selecting a topic and finding and reviewing previous work; determining objectives, materials and methods for a research project; writing a proposal outline and presenting a proposal. The guest lectures will address the challenges and rewards within agricultural, environmental and natural science research and professional development. In addition, the course introduces students to developing joint research proposals, seeking and securing funding, and journal article publication.

EVSC 0595. SPECIAL PROBLEMS IN ENVIRONMENTAL SCIENCES. 1st and 2nd Semesters, Summer, 1-2 credits. Special studies for advanced undergraduate and graduate students in Environmental Sciences on subjects not in regularly offered courses.

COURSES FOR GRADUATE STUDENTS

EVSC 0600. ENVIRONMENTAL SCIENCE SEMINAR. 1st and 2nd Semesters. Lect. 1, 1 credit. Lectures from visiting scientists, and other organizations on tops related to environmental science. Presentation of proposals for thesis and technical reports by students on research in environmental science and related areas. This is a unique type of seminar in which knowledge from different areas will be integrated and students will write technical reports from the notes of the lectures combined with literature research. (Only one credit hour for any given semester will be allowed).

EVSC 0695. SPECIAL TOPICS IN ENVIRONMENTAL SCIENCES. 1st and 2nd Semesters. Lect. 3, 3 credits. Topics in the advanced level may be selected from the following: biochemistry, environmental sciences, chemistry, biology, soil sciences and veterinary sciences.

EVSC 0700. RESEARCH AND THESIS IN ENVIRONMENTAL SCIENCES. 1st and 2nd Semesters, Summer, 1-6 credits. Research in thesis problems under the directions of a major

advisor. Students in this program will be required to select research problems on a specific topic concentrating on the investigation of problems of environment and its quality.

EVSC 0752. CONTINUOUS REGISTRATION. 1st and 2nd Semesters, Summer, 0 credits. Restricted to graduate students who have taken all courses including EVSC 0700 and need to use the service and resources of the University to complete their theses or reading for graduate examination. Students may have a maximum of two registrations only; afterwards registration as a regular graduate student will be required until the degree requirements have been completed. Prerequisite: Permission of major advisor.

EVSC 0754 CANDIDATES FOR DEGREE ONLY. 1st and 2nd Semesters, Summer. 0 credits. 1st and 2nd Semesters, Summer. 0 credits. Restricted to graduate students who have completed all requirements for graduate degree including final oral or comprehensive examination, submission of thesis and approval of the thesis by the Office of the Graduate Programs. Students will be permitted to register in the category one time only.

FORESTRY AND NATURAL RESOURCES

The Forestry and Natural Resources Program is designed for students interested in pursuing advance degrees in forestry, fisheries, natural resources, wildlife and ecology. Degree requirements are completed at Tuskegee University and selected cooperating universities.

Undergraduate Program

Three Plus two/three program - Forestry, Fisheries, Natural Resources and Wildlife Ecology

Under the 3+2/3 program, a student completes three years of course work at Tuskegee University and one to three years of course work at either Auburn University, Duke University, Mississippi State University, North Carolina State University, Oregon State University, University of California at Davis, University of Florida, and university of Washington. This will enable the student to obtain a B.S. degree in Environmental Natural Resources and Plant Sciences with an option in forestry, fisheries, natural resources or wildlife from Tuskegee University (after completing the requirements for the fourth year) and the opportunity to pursue an M.F (Masters of Forestry) or M.S. (Masters of Sciences) degree after completing the requirements for the fifth or sixth year from the selected cooperating institution. The B.S. degree will be conferred by Tuskegee University after completing the requirements for the fourth year. The M.F. or M.S. degree will be conferred by the selected cooperating university.

Students electing this option must maintain a minimum G.P.A. of 3.0 and meet the admission requirements for graduate school at the cooperating universities.

CURRICULUM IN FORESTRY AND NATURAL RESOURCES

COURSES FOR UNDERGRADUATE STUDENTS IN FORESTRY AND NATURAL RESOURCES (FORE)

FORE 0205. INTRODUCTION TO FORESTRY. 1st Semester. Lect. 2, Lab 3, 3 credits. Principles of use and management of forest lands with respect to multiple use management. Impacts of forest production on environmental quality. Same as EVSC 0205, PLSS 0205.

FORE 0215. DENDROLOGY. 1st Semester. Lect. 2, Lab 3, 3credits. Classification, nomenclature and identification of important trees in the United States. Field identification will be stressed. Prerequisite: BIOL 0102, 0105. Same as PLSS 0215.

FORE 0301. SILVICS. 1st Semester. Lect. 2, Lab 3, 3 credits. Methods of establishment, composition, growth, quality and treatment of forest stands. Prerequisite: FORE 0215. Same as EVSC 0301, PLSS 0301.

FORE 0302. SILVICULTURE. 2nd Semester. Lect. 2, Lab 3, 3 credits. Theories and practices of controlling forest establishment, composition and growth in order to maintain or enhance the productivity or appearance of the forest. Prerequisites: FORE 0215, 0301. Same as EVSC 0302, PLSS 0302.

FORE 0401. FOREST PROTECTION. 1st Semester. Lect. 2, Lab 3, 3 credits. A description of destruction of forest ecosystem and methods of protecting timber from these destruction forces. Prerequisites: FORE 0302, EVSC 0500. Same as EVSC 0401.

FORE 0402. MENSURATION. 2nd Semester. Lect. 2, Lab 3, 3 credits. Measurement of tree diameters and heights; determine volumes of standing timber products cut therefrom and determine and predict rates of forest growth. Prerequisite: Permission of Instructor. Same as EVSC 0402.

FORE 0403 BIOMETRICS. 1st Semester. Lect. 3, 3 credits. Application of statistical and mensurational techniques in forest resources. Prerequisites: MATH 0207 and FORE 0402.

FORE 0404. PHOTOGRAMMETRY. 1st Semester. Lect. 2, Lab 3, 3 credits. Introduction to photographic measurements including scale, height, stand, volume and timber estimation. Basic interpretation of photos and mapping.

FORE 0405. FOREST ECONOMICS. 2nd Semester. Lect. 2, Lab 3, 3 credits. Economic principles apply to the utilization of forest land through forest products, marketing and consumption of these products. Same as PLSS 0405.

FORE 0410. FOREST HARVESTING. 2nd Semester. Lect. 2, Lab 3, 3 credits. Forest harvesting techniques including logging methods, equipment, costs, and appraisal techniques. Same as PLSS 0410.

FORE 0415. STRUCTURES AND PROPERTIES OF WOOD. 2nd Semester. Lect. 2, Lab 3, 3 credits. Fundamental properties of wood, defects and anatomy of wood will be stressed. Prerequisites: BIOL 0102, 0105. Same as PLSS 0415.

FORE 0505. ISSUES IN WILDLIFE ECOLOGY AND NATURAL RESOURCE MANAGEMENT. 1st Semester. Lect. 3, 3 credits. Introduction to wildlife and conservation issues; relationships between humans and nature; exploration of current threats of species and habitats and novel solutions to these threats. Same as EVSC 0505, PLSS 0505.

FORE 0509. HUMAN DIMENSTIONS OF WILDLIFE MANAGEMENT. 2nd Semester. Lect. 3, 3 credits. This course focuses on wildlife values and provides a historical and contemporary human dimensions context for Wildlife Management.. A presentation of concepts needed to set policies and establish a framework for decision making through a human dimensions approach to wildlife will be discussed. Same as PLSS 0509.

FORE 0595. SPECIAL PROBLEMS IN WILDLIFE ECOLOGY. 1st and 2nd Semesters. 1-3 credits. Special studies for advanced undergraduate and graduate students in wildlife ecology and management.

PLANT AND SOIL SCIENCES

Undergraduate Program

The curriculum is designed to provide the student with a broad background in the basic sciences and general education for continuing studies in the various phases of plant and sciences.

Science Option: This option is designed to provide interested students with formal training in agronomy, horticulture and soils, leading to a Bachelor of Science degree in Plant and Soil Sciences with a concentration in science. This curriculum includes studies related to soils, fertilizers, and field crops as well as advanced undergraduate courses in the sciences associated with crop production and soils. Field representatives for seed and fertilizer companies, field crops management, soil conservationist and pest control are just a few of the many career opportunities available to students completing this curriculum. Students are also prepared for graduate and professional degree programs.

Business Option: This option is designed to provide interested students with formal training in agronomy and horticulture, leading to a Bachelor of Science degree in Plant and Soil Science with a concentration in business. A student who elects to concentrate in business will follow a curriculum designed to provide training in accounting, marketing, economics and management. Career opportunities include such areas as pesticide management, extension agents, floriculturist, fruit and nut production management, and agriculture business associated with the broad field of horticulture and agronomy. Students are also prepared for graduate and professional degree programs.

Horticulture Option: This option is designed to provide interested students with formal training in horticulture, leading to a Bachelor of Science degree in Agricultural Sciences with a concentration in a curriculum designed to provide training in areas, such as vegetable production, fruit and nut production and advanced undergraduate studies in the sciences associated with plant growth and development studies in the sciences associated with plant growth and development. Studies are also prepared for graduate and professional degree programs. Career opportunities

include such areas as pest management, extension agents, horticulture, fruit and nut production manager, and agriculture business associated with the broad field of horticulture.

MINOR in Plant and Soil Sciences - CAENS

COURSES PRIMARILY FOR UNDERGRADUATES STUDIES IN PLANT AND SOIL SCIENCES (PLSS)

PLSS 0100. PLANT AND SOIL SCIENCES ORIENTATION. 1st Semester. Lect. 2, Lab 2, 2 credits. World food and fiber production - a survey of methodologies and cultures.

PLSS 0201. INTRODUCTION TO GEOLOGY. 1st Semester. Lect. 2, Lab 3, 3 credits. The materials of the earth's crust, the processes that produce and modify them and the development of the earth through time. Same as EVSC 0201.

PLSS 0205. INTRODUCTION TO FORESTRY. 1st Semester. Lect. 2, Lab 3, 3 credits. The materials of the earth's crust, the processes that product and modify them and the development of the earth through time. Same as EVSC 0201.

PLSS 0205. GENERAL SOIL SCIENCE. 2nd Semester. Lect. 3, Lab 3, 4 credits. Introduction to the nature and properties of soils including origin, classification, microbiology, chemistry, physics, fertility and management. Prerequisite: CHEM 231. Same as EVSC 0210.

PLSS 0211. GENERAL PLANT SCIENCE. 2nd Semester. Lect. 2, Lab 3, 3 credits. Introduction to the fundamental plant processes and a survey of horticultural and agronomic plants and practices.

PLSS 0215. DENROLOGY. 1st Semester. Lect. 2, Lab 1, 3 credits. Identification, distribution and Silvics of important forest and urban trees of the United States. Field identification will be stressed. Same as FORE 0215.

PLSS 0250. GREENHOUSE AND LANDSCAPE PLANT PRODUCTION. 1st Semester. Lect. 2, Lab 3, 3 credits. Floricultural and ornamental crop production under greenhouse and outdoor conditions.

PLSS 0300. INTRODUCTION TO AGRICULTURAL BIOTECHNOLOGY. 1st Semester. 3 credits. A lecture and laboratory course designed to introduce undergraduates to principles and applications of biotechnology in plant and animal biology and human nutrition. Emphasis is on recent research developments. Student participation is expected through laboratory demonstration, a few hands-on experiments, group discussion and video presentations.

PLSS 0301. SILVICS. 2nd Semester. Lect. 2, Lab 3, 3 credits. Methods of establishment, composition, growth, quality and treatment of forest stands. Prerequisite: FORE 0215. Same as EVSC 0301, FORE 0301.

PLSS 0302. SILVICULTURE. 2nd Semester. Lect. 3, Lab 3, 3 credits. Theories and practices of controlling forest establishment, composition and growth in order to maintain or enhance the productivity or appearance of the forest. Prerequisites: PLSS 0215, EVSC 301. Same as EVSC 0302, FORE 0302.

PLSS 0309. GENETICS. 1st Semester. Lect. 3, Lab 2, 4 credits. Same as BIOL 0309. The fundamental concepts of heredity with emphasis on modem genetics of animals, plants and microorganisms, including reference to human inheritance. Prerequisites: Instructor's Permission and BIOL 0101, 0106.

PLSS 0311. GENERAL ECOLOOY. 2nd Semester. Lect. 3, Lab 3, 3 credits. Same as BIOL 0311. A study of the relationship between organisms and the environments. Emphasis on field work.

PLSS 0315. WEED SCIENCE. 1st Semester. Lect. 2, Lab 3, 3 credits. Classification, identification, distribution, eradication and economic aspects of common farm weeds and poisonous plants.

PLSS 0340. PLANT PROPAGATION. 2nd Semester. Lect. 2, Lab 3, 3 credits Principles and practices of sexual and asexual propagation to include dormancy, juvenility, propagating structures, media, fertilizers, soil mixtures, containers, and rooting chemical. The anatomical and physiological basis of propagation and aspectic methods of micro propagation. (This course accelerated 1st eight weeks for Agribusiness Education Majors).

PLSS 0400. UNDERGRADUATE SEMINAR IN PLANT AND SOIL SCIENCE AND FORESTRY. 1st and 2nd Semesters. Lect. 1, Lab 0, 1 credit. Oral reports of past and current topics in the plant sciences, the soil sciences and in natural resources.

PLSS 0401. CROP PHYSIOLOGY. 2nd Semester. Lect. 2, Lab 3, 3 credits. A study of the physiological concepts, which are the basis of the practices and principles of crop production systems are related to the mechanics of growth processes.

PLSS 0405. FOREST ECONOMICS. 1st Semester. Lect. 3, 3 credits. Economic principles applied to the production and consumption of forest products. Same as FORE 0405.

PLSS 0410. FOREST HARVESTING. 2nd Semester. Lect. 2, Lab 3, 3 credits. Forest harvesting techniques including logging methods, equipment, costs, and appraisal techniques. Same as FORE 0410.

PLSS 0415. STRUCTURES AND PROPERTIES OF WOOD. 2nd Semester. Lect. 2, Lab 3, 3 credits. Fundamental properties of wood, defects and anatomy of wood will be stressed. Prerequisites: BIOL 0102, 0105. Same as FORE 0415.

PLSS 0420. FOREST PRODUCTS. 2nd Semester. Lect. 2, Lab 2, 2 credits. Survey of local product manufactured and woodland operations.

PLSS 0425. SOIL GENESIS, MORPHOLOGY AND CLASSIFICATION. 1st Semester. Lect. 2, Lab 3, 3 credits. Theory and practice of describing, classifying and surveying soil; soil genesis processes and reactions comparative soil taxonomy.

COURSES FOR ADVANCED UNDERGRADUATE AND GRADUATE STUDENTS.

GRADUATE STUDIES IN ENVIRONMENTAL, NATURAL RESOURCE AND PLANT SCIENCES.

Under this program, graduate students can obtain a Master of Science degree with emphasis in a number of areas including: plant physiology, plant biochemistry, biotechnology, soil science and sustainable agriculture. Students take courses relevant to their areas of emphasis and are required to do thesis research as part of the requirements for obtaining the degree.

PLSS 0501. FIELD AND FORAGE CROP PRODUCTION. 1st Semester. Lect. 3, Lab 0, 3 credits. Principles and practices involved in the growth and production of major field and forage crop production. Prerequisites: PLSS 0210, 0211, and 0401.

PLSS 0505. ISSUES IN WILDLIFE ECOLOGY AND NATURAL RESOURCE MANAGEMENT. 1st semester. Lect. 3, 3 credits. Introduction to wildlife and conservation issues; relationships between humans and nature; exploration of current threats of species and habitats and novel solutions to these threats. Same as EVSC 0505.

PLSS 0509. HUMAN DIMENSIONS OF WILDLIFE MANAGEMENT. 2nd Semester. Lect. 3, 3 credits. This course focuses on wildlife values and provides a historical and contemporary human dimensions context for Wildlife Management.. A presentation of concepts needed to set policies and establish a framework for decision making through a human dimensions approach to wildlife will be discussed. Same as FORE 0509.

PLSS 0510. SOL PHYSICS. 2ND Semester (Even years). Lect. 3, 3 credits. Theory and practice of quantifying soil particle and pore distributions, soil structure, soil water content, soil water potential , saturated and unsaturated flow, infiltration, drainage, energy balance , evapotranspiration and irrigation. Prerequisites, PLSS 210 and 211

PLSS 0513. GENERAL ENTOMOLOGY. 1st Semester. Lect. 3, Lab 3, 3 credits. Same as BIOL 0512. Biology, recognition, and modern methods of controlling major insect pests of major plants and animals. Prerequisite: Instructor's permission.

PLSS 0521. SOIL AND WATER CONSERVATION. 2nd Semester. Lect. 2, Lab 3, 3 credits. Theory and practice of soil and water conservation arid management for temperate, tropical and arid region soils; land use planning. Prerequisite: PLSS 210.

PLSS 0522. PHYSIOLOGY OF PLANT GROWTH AND DEVELOPMENT. 2nd Semester. Lect. 3, Lab 3, 3 credits. Dealing with all essential and beneficial nutrient elements, absorption, translocation and their metabolic association in plants.

PLSS 0525. MINERAL NUTRITION AND SOIL FERTILITY. 2nd Semester. Lect. 3, Lab 3, 3 credits. Dealing with all essential and beneficial nutrient elements, absorption, translation and their metabolic association in plants.

PLSS 0530. PLANT BIOTECHNOLOGY. 2nd Semester. Lect. 3, 3 credits. A lecture discussion course for upper-level undergraduate and graduate students in agronomy and horticulture. The purpose is to introduce students to principles and applications of plant molecular and cellular genetics with emphasis on research developments including plant gene transfer, RFLP mapping, and plant gene expression.

PLSS 0531. PLANT BREEDING. 1st Semester. Lect. 2, Lab 3, 3 credits. A study of the basic principles underlying plant breeding and genetics, including the relationships of other sciences to plant breeding and the ways in which these sciences can be utilized to maintain an effective breeding program. Prerequisites: BIOL 0309.

PLSS 0532. TEMPERATE, SUBRROPICAL AND TROPICAL HORTICULTURE. 1st Semester. Lect. 3, Lab 3, 3 credits. Principles of growing and handling fruits and nuts common to the southeast, with emphasis on propagation cultivation, fertilization, classification, pruning, harvesting, storage and marketing.

PLSS 0533. VEGETABLE CROP PRODUCTION. 2nd Semester (odd years). Lect. 2, Lab 3. A study of the cultural practices of vegetable crops in general with special emphasis on the different types of gardening practices including: organic gardening, minimum village, etc. Emphasis will also be placed on the diseases and insects pertinent to specific crops and methods of their control. In addition, marketing techniques will also be stressed.

PLSS 0540. INTEGRATED PEST MANAGEMENT. 2nd Semester (every other year). Lect. 1½, Lab 1½, 3 credits. This course provides the concepts and principles of managing insect pests, diseases, and weeds in a manner that is sustainable and socio-ecologically acceptable. It will cover policies, regulatory laws in the USA and those that govern international plant protection, as well as emerging concepts. Decision-enabling concepts will be emphasized to facilitate the management of pests ranging from noxious weeds, invasive pests and pests of domestic, medical and veterinary importance. In addition, students will be equipped with the skills that would make them eligible to practice as Pest Management Professionals.

PLSS 0555. SOIL CHEMISTRY. 1st Semester, even years. Lect. 3, 3 credits. Theory and practice of the inorganic chemical reactions involved in soil development and nutrient availability and cycling; topics include chemical ion exchange equilibria and kinetics, colloidal systems, solubility diagrams and oxidation reduction. Prerequisites: CHEM 0231, 0232, PLSS 0210. Same as EVSC 0555.

PLSS 0565. BIOTECHNOLOGY. 2nd Semester. Lect. 2, Lab 6, 4 credits. Same as Biology 565. This course is designed to introduce advanced undergraduates and graduate students to basic recombinant DNA techniques including growth and manipulation of phases and their bacterial hosts; isolation, quantitation, and electrophoretic analysis of DNA; restriction and ligation of DNA; cloning in lambda; MS and plasmid vectors; site-specific mutagenesis. The focus of the

course is hands-on experimentation; however, time will be devoted to discussion of application of these and other techniques to variety of research problems. By the end of the course, me students should have a working knowledge of basic recombinant technology, should have an introductory knowledge of more specialized techniques, and should be familiar with me terminology and resource literature of genetic engineering.

PLSS 0590. SOIL/ENVIRONMENTAL MICROBIOLOGY. 1st Semester, Odd year. Lect. 3, 3 credits. Description, location, taxonomy, abundance and significance of the major groups of soil microorganisms, major biochemical transformations carried out by the organisms; major biochemical transformations carried out by the soil micro flora and their relationships to soil fertility and environmental pollution are examined. Prerequisites: CHEM 0311 or 0320 and graduate standing or consent of instructor. Same as EVSC 0590.

PLSS 0595. SPECIAL PROBLEMS ENVIRONMENTAL< NATURAL RESOURCE AND PLANT SCIENCES. 1st and 2nd Semesters. 1-3 credits. Special studies for advanced undergraduate and graduate students in Plant and Soil Sciences on subjects not in regularly offered courses.

COURSES FOR GRADUATE STUDENTS (PLSS)

PLSS 0600. SEMINAR. 1st and 2nd Semesters. Lect. 1, Lab 0, 2 credits. Oral reports and discussion on technical and scientific agriculture.

PLSS 0626. SOIL TESTINT AND PLANT ANALYSIS. 1st Semester, odd years. Lect. 2, Lab 3, 3 credits. Principles of plant and soil sample collection, extraction and determination of nutrients, and correlation and interpretation of analytical results; laboratory methods include atomic absorption and flame emission spectrophotometry, specific ion electrodes, and calorimetric, distillation and filtration procedures.

PLSS 0631. ADVANCED FRUIT SCIENCE. 1st Semester, even years. Lect. 3, Lab 0, 3 credits. Principles underlying setting and fruiting habits, including water relations, nutrition, climate, varieties and pruning of horticultural crop.

PLSS 0650. PHYTOHORMONE AND VITAMINS. 1st Semester. Lect. 3, Lab 0, 3 credits. Chemistry, physiology and practical application of phytohormone, vitamins in development of plants.

PLSS 0676. PHYSICAL CHEMISTRY AND MINERALOGY OF SOILS. 1st Semester, even years. Lect. 2, Lab 3, 3 credits. A study of me structure and nature of clay minerals and physical chemistry techniques to investigate physic-Chemical properties of soils. Prerequisites: PLSS 0626, CHEM 0401, 0402 and Permission of instructor.

PLSS 0680. ADVANCED PLANT BREEDING. 2nd Semester, odd years. Lect. 2, Lab 3, 3 credits. A study of me relationships between plant breeding methods and their utilization in advancing genetic material. Both practical and theoretical uses will be dealt with as related to crop improvements. Prerequisites: PLSS 0530 or Consent of advisor.

PLSS 0681. ADVANCED VEGETABLE CROPS. 2nd Semester, even years. Lect. 2, Lab 3, 3 credits. A study of cultural practices of specific vegetable crops with emphasis being placed on growing, harvesting and marketing. Prerequisites; 1 PLSS 530 or consent of advisor.

PLSS 0695. SPECIAL TOPICS IN ENVIRONMENTAL, NATURAL RESOURCE AND PLANT SCIENCES. 1st and 2nd Semester. Lect. 3, 3 credits. Topics at the advanced level may be selected from the following: biochemistry, plant physiology and soil sciences.

PLSS 0700. RESEARCH IN ENVIRONMENTAL, NATURAL RESOURCE AND PLANT SCIENCES. 1st and 2nd Semesters. 1-6 credits. Research on thesis project under the direction of the major professor.

PLSS 0752. CONTINUOUS REGISTRATION. 1st and 2nd Semesters, Summer. 0 credits. Restricted to graduate students who have taken all courses including PLSS 0700 and need to use the service and resources of the University to complete their theses or reading for graduate examination. Students may have a maximum of two registrations only; afterward registration as a regular graduate student will be required until degree requirements have been completed. Prerequisite: Permission of major advisor.

PLSS 0754. CANDIDATE FOR DEGREE ONLY. 1st and 2nd Semester, Summer. 0 credits. Restricted to graduate students who have completed all requirements for graduate degree including final oral or comprehensive examination, submission of thesis and approval of the thesis by the Office of the Graduate Programs. Students will be permitted to register in the category one time only.

FOOD AND NUTRITIONAL SCIENCES

The program offerings in the Department of Food and Nutritional Sciences consist of options in Food Science, Nutritional Science, the Didactic Program in General Dietetics, Undergraduate Program in Public Health Nutrition, Food Science/Biology, and Nutritional Science/Biology, each of which leads to a Bachelor of Science degree. These undergraduate curricula provide a broad general education, plus professional competency for positions in government and non-government agencies, research laboratories, universities and organizations dealing with health, nutrition, education and human needs. The Food and Nutritional Science Advisory Board (FNSAB, a support arm for the department) composed of professionals in academia and the food industries, provides student internship opportunities at member companies, annual scholarships for academic achievers in financial need, and a well developed mentorship program.

The graduate program, a two-year program leading to the Master of Science degree, is offered in Food and Nutritional Sciences with two major emphases: Food Science or Nutritional Science. Areas of research include: Food Safety, Food Product Development, Nutritional Biochemistry and Community Nutrition. All students accepted into the graduate program, must have a B. S. degree in food science, nutrition, general dietetics or related area. Graduate study provides the opportunity for greater breadth and depth in a selected area of specialization through course work, a critical examination of the literature, experience in research methods and techniques, internships and co-op experiences. The Food Safety and Processing Center provides a wide array of hands-on

experiences in the areas of new food product development, food processing and food safety for students majoring in food science, nutritional science, general dietetics, public health nutrition, food science/biology, and nutritional science/biology. The nutrition program encompasses a Center for Research on Nutrition, Lifestyle and Chronic Disease in Alabamians. Experimentation in cardiovascular disease, cancer, etc. research includes the use of animals, human models and quality food product development to solve nutritional problems. Undergraduate and graduate students work in the center, thereby combining nutritional theory with practice.

Food Science

Undergraduate: The Food Science option is a B.S. degree program of study that integrates food science, chemistry, physics, biology and microbiology in an applied manner. The curriculum is intended to give a firm foundation in science and technology associated with food product development and food processing as they relate to the human body. Students majoring in both food science and nutrition have a common curriculum in their freshman year. Beginning in their sophomore year, students take specialized courses in food science and related areas. Upon graduation, several career options are available to those majoring in food science. These include research and training programs in the food industry, opportunities in teaching and research, and administrative careers in food and related industries. The program offers excellent preparation for graduate study in food science, nutritional science or several related areas. This program is under review for reapproval by the Committee on Higher Education of the Institute of Food Technologists, Chicago, IL, the national accrediting body of undergraduate food science programs across the United States.

Nutritional Science

Undergraduate: The Nutritional Science option is a B.S. degree program of study that integrates nutritional science, anatomy, biology, chemistry, physics and human physiology. The basic science foundation upon which this curriculum is built prepares students for earning the M.S degree at Tuskegee University or other institutions in either applied community nutrition or nutritional biochemistry. During the sophomore year of this four year program, students take courses in specialized areas of nutrition and related sciences. Careers with USDA as well as in public health facilities are available after graduation. Individuals with advanced degrees may elect to work in either colleges or universities in teaching or research, the private sector, or work in the federal government.

Didactic Program in Dietetics

Undergraduate: The Didactic Program in Dietetics (DPD) option is a Bachelor of Science degree program. Students majoring in the DPD are given verification statement(s) signed by the program director when their names appear on the official graduation list. Courses in the curriculum are required so the DPD graduate will have the technical and academic knowledge to successfully compete for placement in a Dietetic Internship program, graduate school or for entry-level jobs. Students who successfully complete the Dietetic Internship will be eligible to take the national registration examination to become a Registered Dietitian (RD). The DPD program at Tuskegee University is currently accredited by the Commission on Accreditation for Dietetics

Education of the American Dietetic Association, 120 South Riverside Plaza, Suite 2000, Chicago, Illinois 60606-6995, 312/899-4876.

The curriculum focuses in the first two years on general degree requirements and a basic knowledge in the natural and social sciences. During the last two years emphasis is on both theory and clinical and/or laboratory experience necessary for meeting the minimum knowledge, skills and competencies requirements. No student will be verified without completing all the requirements.

A. Phase One: The first two years may be completed in the Department of Food and Nutritional Sciences or at any other accredited college or university. The liberal and general education requirements are organized so that knowledge and skills are developed sequentially. Thus, the necessary knowledge base is developed for entry into phase two of the program.

B. Phase Two: To be eligible for entry into phase two of the program, students must have achieved the following:

a. Overall grade point average of 2.00.

b. Minimum grade point average of 2.50 in major courses.

c. Satisfactory completion of all course requirements in the first three semesters; and satisfactory health for participation in the clinical aspects of the program during the senior year.

C. Retention: To be retained in the program, students must maintain a 2.50 average in professional courses and an overall grade point average of 2.00 (on a four point scale).

Public Health Nutrition

The Undergraduate Program and Public Health Nutrition (UPPHN) provide students with skills in: i) core knowledge-chemistry, biochemistry, nutrigenomics, biology and microbiology; ii) developing community programs to promote optimal nutrition and good health; iii) working with special groups at risk for disease; and iv) evaluating lifestyle, environmental, and psychological issues related to nutrition and health. The developed curriculum will prepare students to serve in public health related fields. The program is also designed to provide students with practical experiences in data collection related to chronic disease morbidities (cardiovascular disease, cancer, diabetes, obesity, etc.) and to formulate nutrition based solutions. Career opportunities are available in most public health facilities throughout the United States.

Food Science/Biology

Undergraduate: The Food Science/Biology option affords students majoring in food science and biology the opportunity to attain a dual major in four (4) years. Upon graduation, the student is marketable for employment in either area having two B.S. degrees. This food science degree is

also under re-approval by the Institute of Food Technologists. Previous students with a B.S. degree in Food Science have pursued medical school and have successfully graduated. See the undergraduate description for food science and biology for more details regarding career options.

Nutritional Science/Biology

Undergraduate: The Nutritional Science/Biology option affords students majoring in nutritional science and biology the opportunity to attain a dual major in four (4) years. Upon graduation, the student is marketable for employment in either area having two B.S. degrees. Previous students earning a B.S. degree in Nutritional Science have pursued medical school and have successfully graduated. See the undergraduate description for nutritional science and biology for more details regarding career options.

GRADUATE: The Master's of Science Degree programs in the Department of Food and Nutritional Sciences offer opportunities for creative endeavors through basic and applied research. This is best accompanied by a curriculum which is broad in scope and includes work in the areas of food safety, food product development, nutritional biochemistry and community nutrition. It is imperative that a prospective food scientist or human nutritionist has a B. S. degree in food science, nutrition, general dietetics, public health nutrition or related areas before applying for this program. The department also offers a Master's of Science in Food and Nutrition, non-thesis option; The program requires 30 course credits and successful passage of a comprehensive examination.

Below is a listing of the humanities, social and natural sciences, and mathematics and computer science requirements for the undergraduate degree:

Humanities (English, Communications, Literature, Philosophy, Fine Arts & Music) Requirements

	Credit Hours	
Food Science	14	ENGL 101, 102, 208; PHIL 237; 2 hrs humanities electives
Food Science/Biology	14	ENGL 101, 102, 208, PHIL 237, FPAR 101
Nutritional Science	12	ENGL 101, 102, 208; PHIL 0237, FPAR 101
Nutritional Science/Biology	14	ENGL 101, 102, 208; PHIL 237; FPAR 101
General Dietetics	12	ENGL 101, 102, 201; 3 hrs, humanities electives or social

		science elective
Public Health Nutrition	12	ENGL 101, 102, 201; 3 hrs, humanities electives or social science elective

Social Sciences (History, Political Science, Psychology, Sociology, Economics and Social Work) Requirements

	Credit Hours	
Food Science	6	ECON 201; PSYC 270
Food Science/Biology	12	HIST 103, 104, ECON 201, PSYC 270
Nutritional Science	12	HIST 103, 104; PSYC 270, ECON 201
Nutritional Science/Biology	9	HIST 103, 104, PSYC 270;
General Dietetics	12	ECON 201; SOCI 240; PSYC 270; PHIL 237, 3 hrs humanities electives or social science elective
Public Health Nutrition	12	ENGL 101, 102, 201; 3 hrs humanities electives or social science elective

Natural Sciences (Biology, Chemistry and Physics) Requirements

	Credit Hours	
Food Science	37	BIOL 120, 121, 230, 231, 301, 303; CHEM 231, 233, 232, 234, 320, 322, 360, 361; PHYS 301, 302, 303, 304
Food Science/Biology	49	BIOL 100, 120, 121, 230, 231, 250, 251, 301, 303, 401, 540; CHEM 231,

		233, 232, 234, 320, 322, 321, 323, 360, 361; PHYS 301, 302, 303, 304
Nutritional Science	39	ANPH 201, 202; BIOL, 230, 231, 301, 303; CHEM 231, 233, 232, 234, 320, 322, 360, 361; PHYS 301, 303,
Nutritional Science/Biology	53	ANPH 201, 202 BIOL 100, 120, 121, 230, 231, 250, 251, 301, 303; CHEM 231, 233, 232, 234, 320, 322, 321, 323, 360, 361; PHYS 301, 302, 303, 304
General Dietetics	35	ANPH 201, 202, BIOL 230, 231, 301, 303; CHEM 231, 233, 232, 234, 320, 322, 360.
Public Health Nutrition	35	ANPH 201, 202, BIOL 230, 231, 301, 303; CHEM 231, 233, 232, 234, 320, 322, 360.

Mathematics and Computer Science Requirements

	Credit Hours	
Food Science	18	MATH 107, 108, 207; CSCI 100
Food Science/Biology	18	MATH 107, 108, 207; CSCI 100
Nutritional Science	14	MATH 107, 108, 207; CSCI 100
Nutritional Science/Biology	14	MATH 107, 108, 207; CSCI 100
General Dietetics	7	MATH 107; CSCI 100

CURRICULUM IN FOOD SCIENCE AND NUTRITIONAL SCIENCE

(Food Science and Nutritional Science have Common freshman year)

Freshman Year

First Semester	Credit	Second Semester	Credit
OREN 100 **Freshman Seminar**	1	OREN 100 **Freshman Seminar**	1
ENGL 101 **English**	3	ENGL 102 **English**	3
HIST 103 **History**	3	HIST 104 **History**	3
MATH 107 **Alg. & Trig.**	4	MATH 108 **Alg. & Trig.**	4
CHEM 231 **Chemistry**	4	CHEM 232 **Chemistry**	4
CHEM 233 **Chemistry Lab**	1	CHEM 234 **Chemistry Lab**	1
PHED or ROTC **Physical education or ROTC**	1	PHED or ROTC **Physical education or ROTC**	1
Total	**17**	Total	**17**

Food Science Option

Sophomore Year

First Semester	Credit	Second Semester	Credit
CSCI 100 **Computer Sci**	3	NUSC 111 **Nutrition, Wellness and Health**	3
FOSC 100 **World Food Fiber & People**	2	BIOL 230 **Cell & Genetics**	3
FPAR 101 **Art Appreciation**	2	BIOL 231 **Cell & Genetics Lab**	1
HOMT 112 **Basic Food Production**	3	PHIL 237 **Introduction to Logic**	3
ENGL 208 **English**	3	PSYC 270 **Psychology**	3

(American Literature)			
MATH 207 **Anal. Geom & Calc I**	4	BIOL 301 **Microbiology**	3
English Proficiency Exam		BIOL 303 **Microbiology**	1
Total	**17**	Total	**17**

Junior Year

First Semester	Credit	Second Semester	Credit
BIOL 120 **Organism Biology**	3	NUSC 302 **Nutritional Biochemistry**	4
BIOL 121 **Organism Biology Lab**	1	PHYS 302 **General Physics**	3
PHYS 301 **General Physics**	3	PHYS 304 **General Physics Lab**	1
PHYS 303 **General Physics Lab**	1	CHEM 360 **Biochemistry of Cell Reg**	3
FOSC 301 **Introduction to Food Sci**	3	CHEM 361 **Biochemistry of Cell Reg Lab**	1
CHEM 320 **Organic Chemistry**	3	FOSC 571 **Food Proc Eng. Tech**	4
CHEM 322 **Organic Chemistry Lab**	2		
Total	**16**	Total	**16**

Senior Year

First Semester	Credit	Second Semester	Credit
ECON 201 **Principles of Economics**	3	NUSC 400 **Sem. In Food & Nutr. Sciences**	1
EVSC 500 **Bio-statistics I**	3	NUSC 501 **Professor Seminar**	1
FOSC 505 **Meth. Of Food & Nutr. Anal**.	2	FOSC 507 **Applied Food Microbiology**	4
FOSC 506 **Meth. Of Food & Nutr. Anal. Lab**	2	FOSC 510 **Food Chem.**	4
Elective	3	FOSC 573 **Prod. Res. Innov. & Sen. Eval. of Foods**	4
Total	**13**	Total	**14**

Nutrition Science Option

Sophomore Year

First Semester	Credit	Second Semester	Credit
CSCI 100 **Computer Sci**	3	FPAR 101 **Art Appreciation**	2
NUSC 100 **World Food Fiber & People**	2	NUSC 111 **Nutrition, Wellness and Health**	3
ENGL 208 **English (American Literature**)	3	BIOL 230 **Cell & Genetics**	3
PSYC 270 **Psychology**	3	BIOL 231 **Cell & Genetics Lab**	1
CHEM 320 **Organic**	3	PHIL 237 **Introduction to Logic**	3

CHEM 322 **Organic Lab**	2	BIOL 301 **Microbiology**	3
English Proficiency Exam		BIOL 303 **Microbiology**	1
Total	**16**	Total	**16**

Junior Year

First Semester	Credit	Second Semester	Credit
HOMT 112 **Basic Food Production**	3	NUSC 302 **Nutritional Biochemistry**	4
ANPH 201 **Anatomy and Physiology**	4	ANPH 202 **Anatomy and Physiology**	4
PHYS 301 **General Physics**	3	ENGL 327 **Public Speaking**	3
PHYS 303 **General Physics Lab**	1	CHEM 360 **Biochemistry of Cell Reg**	3
FOSC 301 **Introduction to Food Sci**	3	CHEM 361 **Biochemistry of Cell Reg Lab**	1
EVSC 500 **Bio-statistics I**	3		
Total	**17**	Total	**15**

Senior Year

First Semester	Credit	Second Semester	Credit
ECON 201 **Principles of Economics**	3	BUSN 211 **Accounting**	3
NUSC 305 **Community Nutrition**	3	NUSC 307 **Life Cycle Nutrition**	3

NUSC 343 **Medical Nutritional Therapy I**	3	NUSC 400 **Sem. In Food & Nutr Sciences**	1
FOSC 505 **Meth. Of Food & Nutr. Anal**.	2	NUSC 443 **Medical Nutritional Therapy II**	3
FOSC 506 **Meth. Of Food & Nutr. Anal. Lab**	2	NUSC 501 **Professional Seminar**	1
		FOSC 507 **Applied Food Microbiology**	4
Total	**13**	Total	**15**

CURRICULUM FOR DIDACTIC PROGRAM IN DIETETICS OPTION

(GENERAL DIETETICS)

Common Program Year with Public Health Nutrition

Freshman Year

First Semester	Credit	Second Semester	Credit
OREN 100 **Freshman Seminar**	1	OREN 101 **Freshman Seminar**	1
NUSC 100 **World Food Fiber & People**	2	CSCI 100 **Computer Sci**	3
ENGL 101 **English**	3	ENGL 102 **English**	3
BIOL 230 **Cell & Genetics**	3	MATH 107 **Alg. & Trig.**	4
BIOL 231 **Cell & Genetics Lab**	1	CHEM 232 **Chemistry**	4
CHEM 231 **Chemistry**	4	CHEM 234 **Chemistry Lab**	1

CHEM 233 **Chemistry Lab**	1		
Total	**15**	Total	**16**

Sophomore Year

First Semester	Credit	Second Semester	Credit
NUSC 111 **Nutrition, Wellness and Health**	3	ECON 201 **Principles of Economics**	3
HOMT 112 **Basic Food Production**	3	ANPH 202 **Anatomy and Physiology**	4
ANPH 201 **Anatomy and Physiology**	4	PHYC 270 **Intro to Psychology**	3
SOCI 240 **Intro. Sociology**	3	BIOL 301 **Microbiology**	3
CHEM 320 **Organic Chemistry**	3	BIOL 303 **Microbiology Lab**	1
CHEM 322 **Organic Chemistry Lab**	2	**CHEM 360 Biochemistry of Cell. Reg.**	4
PHED Elective	1	PHED Elective	1
English Proficiency Exam			
Total	**19**	Total	**19**

Junior Year

First Semester	Credit	Second Semester	Credit
NUSC 303 **Nutr Edu/Coun/Interviewing**	3	ENGL 201 **English Advanced Composition**	3

NUSC 304 **Nutrition Assessment**	3	BUSN 211 **Accounting**	3
NUSC 305 **Community Nutrition**	3	NUSC 307 **Life Cycle Nutrition**	3
HOMT 361 **Applied Hospitality Systems**	3	BUSN 311 **Marketing**	3
HOMT 462 **Facilities Management and Design**	3	PHIL 347 **Medical Ethics**	3
Total	**15**	Total	**15**

Senior Year

First Semester	**Credit**	**Second Semester**	**Credit**
BUSN 331 **Principles of Management**	3	NUSC **302 Nutritional Biochemistry**	4
NUSC 343 **Medical Nutrition Assessment**	3	NUSC 400 **Sem. In Nutrition Therapy II**	1
Food & Nutr. Sciences Service in Health Care			

3	NUSC 444 **Practicum Food Quality Seminar**	2	2	**Elective Humanities or**	3
				Total	**17**

Freshman Year

OREN 100

1	OREN 101	1	1	CHEM 232	4
	NUSC 100 **World Food Fiber & People**			CHEM 231	
	Computer Sci				
	BIOL 230 **Cell & Genetics**				
	Trig.				

4	CHEM 234	1	1	PHED Elective	1
	CHEM 233				

Sophomore Year

NUSC 111

	3	BIOL 303	1
3	ANPH 202		4
		CHEM 320	

HOMT 112 **Basic Food Production**

Psychology

Anatomy and Physiology

Microbiology

3	**PHIL 347 Medical**	2	**CHEM 360**	4
	3			
			English Proficiency Exam	
CHEM 322				
			Total	**18**

First Semester	**Credit**	**Second Semester**
HOMT 361 **Applied Hospitality Systems**		
Economics		
Edu/Coun/Interviewin g		
English		
Advanced		
Composition		

3	NUSC/PHN 301	3	3	NUSC 307 **Life**	3
	NUSC 305			EVSC 500 **Biostatistics I**	

3			2	NUSC 580 **International Nutr Prob. & Policies**	3
	NUSC/PH				
N 365	3 **Program Planning & Evaluation**				
				Senior Year	
MBIO 614 **Epidemiology**			BUSN 211 **Accounting**		

3	NUSC 302 **Nutritional Biochemistry**	3	NUSC 400 **Sem. In Food & Nutr. Sciences**	1
	BUSN 311 **Marketing**		BUSN 331 **Principles of Management**	

3	NUSC 443 **Medical Nutrition Therapy II**	3	3	NUSC 444 **Practicum** HOMT 462 **Facilities Management and Design**	2

NUSC 343 **Medical Nutrition Therapy I**

4	NUSC 501 **Professional Seminar**	1			
			Total	**16**	Total

NUSC 402 **Food**	4	NUSC 443 **Medical** I	3
EVSC 500 Biostatistics			
FOSC 505 Anal. Of	2	NUSC 501 **Professional**	1
FOSC 506 **Anal. of**		**Food Quality Lab** **Social Sciences**	

PUBLIC HEALTH NUTRITION

First Semester	**Credit**	**Second Semester**	**Credit**
Freshman Seminar		**eshman Seminar**	
F r			
	2	CSCI 100	3
ENGL 101 **English**	3	ENGL 102 **English**	3
	3	MATH 107 **Alg. &**	4
BIOL 231 **Cell & Chemistry Chemistry Lab**		**Genetics Lab** **Chemistry Chemistry Lab**	
Total	**15**	Total	**17**

First Semester	**Credit**	**Second Semester**	**Credit**
Nutrition, Wellness and Health		**Anatomy and Physiology**	

		Intro to	3	
3	PHYC 270			
	ANPH 201	4	BIOL 301	3
	SOCI 240 **Intro. Sociology**		**Microbiology Lab**	
	Organic Chemistry		**Ethics**	
	Organic Chemistry Lab		**istry of Cell. Reg.**	
	B i o c h e m			
			PHED Elective	1

Junior Year

				Credit
		3	ECON 201 **Prin.**	3
	NUSC 303 **Nutr**	3	ENGL 201 **to Public**	3
	NUSC 304 **Nutrition Assessment**		**Health Nutrition**	
	I n t r o			
	Community Nutrition		**Cycle Nutrition**	
	Total	**17**	Total	**18**

First Semester	**Credit**	**Second Semester**	**Credit**
		General Elective	3

FOOD SCIENCE/BIOLOGY OPTION

Freshman Year

First Semester	Credit	Second Semester	Credit
The same as Biology	17	The same as **Biology**	16

(OREN 100, BIOL 100, ENGL 101, HIST 103, MATH 107, BIOL 120/121, PHED)		**(OREN 100, 230/231, PHED)**	
FOSC 100 **World Food Fiber & People**	2		
Total	**19**	Total	**16**

Sophomore Year

First Semester	Credit	Second Semester	Credit
The same as Biology **(BIOL 250/251, CHEM (231/233)**	8	The same as Biology **(CHEM 232/234)**	7
NUSC 111 **Nutrition, Wellness and Health**	3	FPAR 101 **(Art Appre, Creative Expt)**	2
ENGL 208 (English, Creative Exp)	3	PHIL 237 **(Intro Logic, Critical Thinking**)	3
PSYC 270 Psychology	3		
English Proficiency Exam			
Total	**17**	Total	**12**

Junior Year

First Semester	Credit	Second Semester	Credit
The same as Biology **(CHEM 320/322, PHYS 301/303)**	9	The same as Biology **(CHEM 321/323, PHYS 302/304)**	9
MATH 207 Anal. Geom & Calc I (BIOL Skills	4	CHEM 360 (**Same as BIOL 360) (BIOL**	3

or Math)		**ELECT)**	
FOSC 301 Introduction to Food Science	3	CHEM 361 **(Same as BIOL 361) (BIOL ELECT**)	1
		FOSC 507 **Applied Food Microbiology**	4
Total	**16**	Total	**17**

Senior Year

First Semester	**Credit**	**Second Semester**	**Credit**
ECON 201 **Prin of Economics**	3	NUSC 302 **Nutr Biochem (BIOL ELECT)**	4
NUSC 343 **Medical Nutrition Therapy I**	3	NUSC 501 **Professional Seminar**	1
BIOL 401 **Seminar in Biology**	1	FOSC 510 **Food Chemistry**	4
EVSC 500 **Bio-statistic (BIOL ELECT**)	3	FOSC 571 **Food Proc. Eng. Tech**	4
FOSC 505 **Meth of Food & Nutr Anal.**	2	FOSC 573 **Prod. Res. Innov. & Sens. Eval. of Foods**	4
FOSC 506 **Meth of Food & Nutr Anal Lab (BIOL ELECT)**	2		
Total	**15**	Total	**17**

NUTRITIONAL SCIENCE/BIOLOGY

Freshman Year

First Semester	Credit	Second Semester	Credit
The same as Biology **(OREN 100, BIOL 100, ENGL 101, HIST 103, MATH 107, BIOL 120/121, PHED)**	17	The same as **Biology (OREN 100, 230/231, PHED)**	16
NUSC 100 **World Food Fiber & People**	2		
Total	**19**	Total	**16**

Sophomore Year

First Semester	Credit	Second Semester	Credit
The same as **Biology (BIOL 250/251, CHEM (231/233)**	8	The same as Biology (CHEM 232/234)	4
NUSC 111 **Nutrition, Wellness and Health**	3	CSCI 100 **Intro Comp Sci**	3
HOMT 112 **Basic Food Production**	3	FPAR 101 **Art Appre, Creative Expr**	2
ENGL 208 (English, Creative Exp)	3	PHYC 270 **Intro to Psychology**	3
		PHIL 237 **Intro Logic, Critical Thinking**	3
English Proficiency Exam			
Total	**17**	Total	**15**

Junior Year

First Semester	Credit	Second Semester	Credit
The same as Biology **(CHEM 320/322, PHYS 301/303)**	9	The same as Biology **(CHEM 321/323, PHYS 302/304)**	9
FOSC 301 **Introduction to Food Science**	3	BIOL 310/303 **General Microbiology Lab (BIOL ELECT)**	4
Biology Elective	6	CHEM 360 **(Same as BIOL 360) (BIOL ELECT)**	3
		CHEM 361 **(Same as BIOL 361) (BIOL ELECT)**	1
Total	**18**	Total	**17**

Senior Year

First Semester	Credit	Second Semester	Credit
ANPH 201 **Anatomy & Physiology**	4	ANPH 202 **Anatomy & Physiology**	4
NUSC 343 **Medical Nutrition Theraphy I**	3	NUSC 302 **Nutr biochem (BIOL ELECT)**	4
BIOL 401 **Seminar in Biology**	1	NUSC 305 **Community Nutrition**	3
FOSC 505 **Meth of Food & Nutr Anal**.	2	NUSC 443 **Medical Nutritional Therapy II**	3
FOSC 506 **Meth of Food & Nutr Anal Lab (BIOL ELECT)**	2	NUSC 501 **Professional Seminar**	1

EVSC 500 **Bio-statistic (BIOL ELECT**)	3	FOSC 507 **Applied Food Microbiology**	4
	Total **15**		Total **19**

COURSE DESCRIPTIONS: These major courses emphasize strengthening skills in communications (oral and written), problem solving, critical thinking and possessing a command for core knowledge.

Undergraduate and Graduate Curricula in Food and Nutritional Science

FOSC 0100. FOOD AND NUTRITIONAL SCIENCES ORIENTATION. 1st Semester. Lect. 2, Lab 3, 2 credits. Same as Animal and Poultry Science 100. World Food and Fiber Production—A survey of methodologies and cultures. It is an introductory course designed to make the student aware of the interrelationships between people and their environments. The characteristics and use of personal computers are presented as a necessary tool to assist students in generating reports and maintain information. All Food and Nutritional Science majors are required to take.

NUSC 0100. FOOD AND NUTRITIONAL SCIENCES ORIENTATION. 1st Semester. Lect. 2, Lab 3, 2 credits. Same as Animal and Poultry Science 100. World Food and Fiber Production—A survey of methodologies and cultures. It is an introductory course designed to make the student aware of the interrelationships between people and their environments. The characteristics and use of personal computers are presented as a necessary tool to assist students in generating reports and maintain information. All Food and Nutritional Science majors are required to take.

NUSC 0111. NUTRITION, WELLNESS AND HEALTH. 1st Semester, Lect. 3, 3 credits. This course acquaints students with an overview of the role of macro and micro nutrients in human nutrition, their sources, chemical structure, functions, dietary requirements, clinical implications in deficiency, and toxicity effects of an over dose of nutrients; the functions of these macro and micro nutrients in the promotion of health and the prevention of disease are also explored. Prerequisites: CHEM 0221, 0223; 0222, 0224; CHEM 0231, 0232; CHEM 0233, 0234.

FOSC 0301. INTRODUCTION TO FOOD SCIENCE. 1st Semester, Lect. 3, 3 credits. An overview of basic scientific principles involved in food science as related to the food industry. A study of food components, their functionalities in food processing, principles, technologies and emerging technologies involved in food processing. preservation, food safety and nutrition are presented. Quality aspects of specific food and food products will also be discussed. Prerequisite: CHEM 232; BIOL 101, 102; MATH 108.

NUSC/PHN 301. Introduction to Public Health Nutrition. 2nd Semester, Lect.3, 3 credits. This course begins with an overview of the history and development of public health. The course provides an integrated program covering dietary, epidemiological, public health, social and

biological aspects of nutritional science. Special topics include maternal and child nutrition, nutrition in emergencies, nutrition program planning, evaluation and monitoring, and nutritional epidemiology. The student is then provided with the opportunity to examine the current public health care system. The fundamentals of epidemiology also are covered. Applications to the students' practice settings are explored. Prerequisites: CHEM 231, 232; CHEM 233, 234; NUSC 0111

NUSC 0302. NUTRITIONAL BIOCHEMISTRY. 2nd Semester. Lect. 4, 4 credits. The study of biochemical and physiological roles of fats, carbohydrates, proteins, nucleic acids, vitamins, minerals and phytochemicals in the human body. Nutrient digestion, absorption, transport and metabolism are studied as well as the interrelationship of nutrients in maintaining cell structure and cellular functions. Nutrient requirements and nutritional assessment for all age levels and an integration of related scientific disciplines with the study of nutrition is also included. Prerequisites: NUSC 0111; ANPH 201, 202; CHEM 0320, 0322, 0360 and 0361.

NUSC 0303. EDUCATION THEORY, COUNSELING, AND INTERVIEWING. 1st semester, Lect. 3, 3 credits. Principles of education related to individuals and groups based on knowledge of nutrition, communication skills, recognition of socioeconomic influences, and familiarity with community resources; assessment of methods, techniques of interviewing, nutrition counseling, and development of counseling materials for nutrition intervention. Prerequisites: NUSC 0111 or permission of instructor.

NUSC 0304. NUTRITION ASSESSMENT. 1st semester, Lect. 3, 3 credits. Techniques needed to evaluate nutritional status and plan appropriate nutrition intervention. Includes assessment of dietary intake, body composition, nutrient requirements, and laboratory indices of nutritional status. Development of appropriate nutrition therapies will be addressed. Includes experience with nutrition assessment of various populations. Prerequisite: NUSC 0111, Corequisite: NUSC 0305 or permission of instructor.

NUSC 0305. NUTRITIONAL SCIENCE – COMMUNITY NUTRITION. 1st Semester. Lect. 3, 3 credits. Involvement in public health programs with nutritional components and their services to the community with particular references to the assessment and surveillance of community nutrition needs and problems; planning, implementing and evaluating community health nutrition programs for high risk groups with in the community; concepts and techniques in effective delivery of nutrition information; methods and tools of nutrition education; legislation public policy on food and nutrition – national and international. Prerequisites: NUSC 0111.

NUSC 0306. INTRODUCTION TO DIETETICS. Introduction to the Profession of Dietetics. 1st Semester. Lect.1, 1 credit. An introduction to the responsibilities of the clinical dietitian as a member of the health care team. Included are professional ethics, counseling, interviewing, medical charting, medical terminology and auditing.

NUSC 0307. LIFE CYCLE NUTRITION. 2nd semester, Lect. 3, 3 credits. Food and nutrient needs and dietary concerns of individuals from conception through old age. Prerequisites: NUSC 304, 305 or permission of instructor.

NUSC 0343. MEDICAL NUTRITION THERAPY I. 1st semester, Lect. 3, 3 credits. Physiological and biochemical anomalies of disease and principles underlying medical nutrition therapy; familiarity with clinical data as a basis of diet prescription; emphasis placed on understanding and translating dietary modifications to foods which meet the diverse cultural, religious, economical, emotional and nutritional needs in disease treatment; complementary and alternative nutrition, herbal therapies, adaptive feeding techniques and equipment. Prerequisites: NUSC 0302 or permission of instructor.

NUSC/PHN 365, Program Planning and Evaluation. 2nd Semester, Lect.3, 3 credits.This course develops students' skills in planning and designing evaluations for public health programs, including nongovernmental and governmental agencies in the United States and abroad. Students will understand the planning process and how to implement planned programs. Students will learn about different types of summative and formative evaluation models and tools for assessment. The course content is based on an ecological framework, principles of public health ethics, a philosophy of problem-based learning, and case study, critiques and evaluation. Students write evaluation plans for a specific public health agency, reviewing their evaluation plans and providing guidance on developing a program evaluation plan for one of the agency's public health programs. Prerequisites: CHEM 231, 232; CHEM 233, 234; NUSC 0111 and EVSC 500

NUSC 0400. SEMINAR IN FOOD AND NUTRITIONAL SCIENCE. 2nd Semester. Lect. 1, 1 credit. The study and discussion of special problems and concerns related to current topics in food science, nutritional science and general dietetics. Reports and weekly dialogue on timely issues in each specified area of interest are covered in preparation for a professional career.

NUSC 0402. FOOD SERVICE IN HEALTH CARE. 1st semester, Lect. 3, lab 2, 4 credits. Issues involved in quantity food production, distribution, storage, and service. This course covers principles and processes of quantity food purchasing, production, sanitation, safety, and equipment use in health care institutions. Prerequisites: HOMT 361, 362, and 364.

NUSC 0413. DIETETICS PRACTICUM. 2nd Semester. Clin. (24 hours/week) 8credits. Opportunity for student to demonstrate and evaluate previously acquired knowledge in management of food service systems and in clinical dietetics; refine skills and demonstrate necessary competency to practice dietetics at a beginning level. Prerequisites: NUSC 0302 and 0343.

NUSC 0443. MEDICAL NUTRITION THERAPY II. 2nd semester, Lect. 3, 2 credits. Continuation of NUSC 0343. Prerequisites: NUSC 0343 or permission of instructor.

NUSC 0444. PRACTICUM. 2nd semester, Lab 6, 2 credits. Experience in community nutrition or clinical nutrition or quantity foods under supervision of qualified health care professionals in health care institutions. Prerequisites: Junior Standing or permission of Instructor.

NUSC 0500. INDEPENDENT STUDIES IN FOOD AND NUTRITIONAL SCIENCE. 1st and 2nd Semesters, Summer, 1-3 credits. Designed to provide credit for independent research studies for both undergraduate and graduate students. This course is developed especially for students in

the Department of Food and Nutritional Sciences. The course deals with current research and development issues in food and nutritional sciences. Permission of instructor.

NUSC 0501. PROFESSIONAL SEMINAR, 2nd semester. Lect. 1, 1 credit. This course serves as the food and nutritional sciences senior level course that incorporates training in professional ethics, professional and technical skills development and conflict resolution as well as careers and career alternatives in dietetics, food or nutrition professions. Guest lecturers bring the benefits of real work world experiences to the classroom. During the semester, a focus on skills to seek and obtain employment, maintenance in professional organizations, continuing education and professional development are also emphasized. Permission of the instructor.

FOSC 0502. ADVANCED MEAT SCIENCE. 2nd Semester Lect. 2, Lab 3, 3 credits. Physical, chemical, microbiological and histological, characteristics of meats. Processes affecting meat quality and methods of analysis. Prerequisites: PHYS 0301; CHEM 0320.

FOSC 0505. METHODS OF FOOD AND NUTRITIONAL ANALYSIS. 1st Semester. Lect. 2, 2 credits. A lecture course designed to teach students current theory and analytical techniques including sensory evaluation that may be employed for conducting research in food science, nutrition and agriculture. Additionally, the course demonstrates to the student current analytical techniques used in the area of food, nutrition, and agriculture. Students will have the opportunity to execute the experiments in FOSC 506. Prerequisites: CHEM 0320 or CHEM 0360 and 0561.

FOSC 0506. METHODS OF FOOD AND NUTRITIONAL ANALYSIS LABORATORY. 1st Semester. Lab 4, 2 credits. A laboratory course for FOSC 0505 designed to develop skills and techniques used in food and nutritional science research. Current analytical methods employed focus on food, nutrition and agriculture. Pre-corequisites: FOSC 0505; CHEM 0320 or CHEM 0360 and 0561.

FOSC 0507. APPLIED FOOD MICROBIOLOGY. The lecture part of this course is designed to introduce the student to food microbiology, and particularly, the interaction of microorganisms with food. Emphasis will be place on the types and role of microorganisms in food spoilage, food borne pathogens, and methods designed to control microbial spoilage of foods. Laboratory sessions are geared towards methods of determining types of microbial contaminants in foods, and methods of preservations and sanitation in food handling facilities. Prerequisite: BIOL 301.

FOSC 0510. FOOD CHEMISTRY. 2nd Semester. Lect. 4, 4 credits. Chemistry of macro- and micro-elements in various foods, fruits, vegetables, cereals, meats and dairy products; changes of nutrients during storage and processing; and application of this knowledge to quality and product development in the food industry. Prerequisites: FOSC 0301 or CHEM 0320; PHYS 0301; MATH 0207.

NUSC 0521. MATERNAL AND CHILD NUTRITION. 1st Semester. Lect. 3, 3 credits. The principles of nutrition with emphasis on requirements during pregnancy and childhood, from infancy through pre-school age. Prerequisites: NUSC 0302; NUSC 0343.

NUSC 0522. ADVANCED COMMUNITY NUTRITION. 1st Semester. Lect. 2, Lab 3, 3 credits. Students learn about community foods and nutrition programs relative to their background, authorizing legislation, target population, and nature and scope of services rendered. They also observe, participate and learn how to evaluate community nutrition programs. Prerequisite: NUSC 0302.

FOSC 0571. FOOD PROCESS ENGINEERING TECHNOLOGY. 2nd Semester. Lect. 3, Lab 3, 4 credits. This course is designed for students majoring in food science or other related disciplines. The course will provide the student with the critical thinking and problem solving skills used in food engineering, an understanding of the engineering concepts associated with how the physical properties of food materials are applied in processing, thermal processing, refrigeration, drying, evaporation, separation and unit operations used in the analysis and design of food and biological systems. The techniques and effectiveness of food packaging are also covered. Prerequisite: PHYS 301; MATH 207

FOSC 0573. PRODUCT RESEARCH INNOVATION AND SENSORY EVALUATION OF FOODS. 2nd Semester. Lect. 2, Lab 4, 4 credits. This course will serve as the food science senior level capstone course that incorporates and unifies the principles of food chemistry, food microbiology, food engineering, food processing, nutrition, sensory analysis and statistics. Teaching methods will include a class and laboratory setting for product research, innovation and sensory evaluation of foods. Prerequisite: PHYS 301, MATH 207, Core Food Science Courses.

COURSES FOR GRADUATE STUDENTS

FOSC 554. SEMINAR IN FOOD SCIENCE AND NUTRITIONAL SCIENCE. 1st and 2nd Semesters, 1 credit. Students are required to present professionally and logically an in-depth and critical review of the literature on current topics in the area of food science or nutrition during the first semester, followed by a presentation of his/her thesis research topic during the second semester. Each seminar is expected to stimulate audience participation and discussion. Faculty and guest lecturers are also invited to present topics of interest in specialized areas. Special Permission of the instructor.

NUSC 0580. INTERNATIONAL NUTRITION PROBLEMS AND POLICIES. 2nd Semester. Lect. 3, 3, credits. This course is designed mainly to acquaint the student with food and nutrition problems in developing countries. Nutrition problems, their causes, prevalence, treatment, and control are emphasized. Government policies, their impact on solving nutritional problems and available nutrition services at government and local levels are also discussed. *Prerequisites: NUSC 0111*.

NUSC 0608. RECENT NATIONAL AND INTERNATIONAL DEVELOPMENTS IN FOOD SCIENCE AND NUTRITIONAL SCIENCE. 2nd Semester, Lect. 3, 3 credits. This course is designed to update and enhance students' knowledge in the area through discussions of selected topics in international development related to food and nutrition. Students are required to critically evaluate existing research to determine if research needs are being met and to apprise themselves of the many ways in which data are presented. Prerequisites: EVSC 500; NUSC 0302.

NUSC 0650. VITAMINS AND MINERAL IN HUMAN NUTRITION. 2nd Semester. Lect. 3, 3 credits. Current developments in the area of macro and micro-elements, fat and water soluble vitamins. Chemical Structures, biochemical functions and interrelationships, metabolism and utilization, nutrient interactions, dietary requirements, clinical implications of deficiencies and toxicity of these nutrients are studied in detail. The course also covers a discussion and evaluation of recent developments in the area of vitamins and mineral. Prerequisite: NUSC 0302 and Co-requisite: CHEM 0561.

NUSC 0651. HUMAN NUTRITION AND HEALTH. 1st Semester. Lect. 3, 3 credits. The metabolism of carbohydrates, lipids and protein and their interrelationships is studied in this course. An evaluation of nutritional status in health as well as energy, nutrient requirements throughout the life cycle, an evaluation of the nutrient quality, phytochemical content and functionality of various foods and their ability to satisfy nutrient requirements is also addressed. Prerequisite: NUSC 0302 and Co-requisite: CHEM 0561.

NUSC 0652. NUTRITION AND DISEASE. 2nd Semester. Lect. 3, 3 credits. Evaluation of nutritional status, normal and disrupted homoeostatic conditions of cells, and biochemistry of nutritional diseases. Maintenance of health and medical nutrition therapy are emphasized. *The etiology, pathophysiology, clinical manifestations and dietary treatment of the disease are discussed.* Prerequisites: NUSC 0650 or 0651.

FOSC 0661. FOOD INGREDIENT CHEMISTRY. 1st Semester. Lect. 3. A study of the chemistry and function of carbohydrates, lipids, proteins, and food additives in food and their function in major food products, including bakery, dairy, and meat products is a major focus. The enhancement of food quality through formulation and processing modifications is also studied. *Pre-requisites: CHEM 320 or 0360, CHEM 561.*

FOSC 0700. RESEARCH IN FOOD SCIENCE. 1st and 2nd Semesters, Summer. 1-6 credits. Research Problems. Hours and credits arranged.

NUSC 0700. RESEARCH IN NUTRITIONAL SCIENCE. 1st and 2nd Semesters, Summer. 1-6 credits. Research Problems. Hours and credits arranged.

FOSC 0752. CONTINUOUS REGISTRATION. 0 credit

NUSC 0752. CONTINUOUS REGISTRATION. 0 credit

FOSC 0754. CANDIDATE FOR DEGREE ONLY. 0 credit

NUSC 0754. CANDIDATE FOR DEGREE ONLY. 0 credit

BIOLOGY

The Department of the Biology offers a curriculum that leads to the Bachelor of Science degree in Biology. A diverse faculty, using challenging and innovative teaching methods, prepares students for careers in the biological sciences. At the completion of the degree program,

the student attains the title of Biologist. The Department of Biology offers the pre-health option and the general biology option.

DEPARTMENTAL MISSION STATEMENT

The Department of Biology endeavors to provide experiences that allow students to learn and develop an understanding of basic biological principles and concepts. The undergraduate curriculum provides biology majors with a basic foundation in biology that enables them to think critically about biological problems, communicate effectively using the language of biology, understand the role of ethics in science, and attain technical skills that allow them to become leaders in their chosen fields. The offering of a broad and diverse curriculum enables students to pursue careers in biotechnology, pharmaceutical research, health care and biology education or pursue advanced study in professional programs (medicine, dentistry, etc.), graduate research programs (biomedical, environmental, biotechnology, etc.) or science education programs. In addition, the department instills in its students the importance of community outreach and the use of biology to serve the community and the world. Ultimately, the department provides an environment that nurtures the development of biological scientists who are always seeking ways to improve the human condition using an ethical approach.

FACILITIES AND CENTERS

Facilities. Teaching and laboratory facilities are housed primarily in Armstrong Hall. A well-equipped multimedia center exists in the building to complement and reinforce effective teaching and learning. There are two computer laboratories in the department for teaching and student use. Located in Armstrong Hall and Carver Research Foundation, both computer facilities provide access to the World Wide Web. Facilities for undergraduate and graduate research may be available in Armstrong Hall, Carver Research Laboratories, or in laboratories in other departments by special arrangement.

Specialized Facilities--Center for Biomedical Research. The Center for Biomedical Research funded by the National Institutes of Health under the auspices of Research Centers for Minority Institutions (RCMI) is located in the Carver Research Laboratories. The Center houses most of the core facilities and many of the research laboratories utilized by the Biology faculty members and other investigators throughout the University. The core facilities provide investigators with technical support and the utilization of state-of-the art equipment in imaging, cell culture, cell sorting and flow cytometry, and biotechnology. Also, computer facilities for database utilization are provided to researchers in epidemiological, genomic and proteomic research through the Center for Computational Epidemiology, Bioinformatics and Risk Analysis which is located in the School of Veterinary Medicine. Enhancement of the bioinformatic capabilities at the University is facilitated through a collaboration with the Genomics Core Facility at the University of Alabama at Birmingham.

The Biotechnology Center, located in Armstrong Hall and Carver Research Laboratories contains equipment for cloning, gene expression, and detection and analysis of biopolymers. Some of the equipment utilized for teaching and research includes: HPLC, LPLC, microcentrifuges, preparatory centrifuges, ultracentrifuges and a UV cross-linker for biopolymer

isolation, purification, and modification; electrophoretic systems (horizontal and vertical gels, including DNA sequencing gels), thermocyclers for PCR and UV/VIS spectrophotometers. There are two walk-in cold rooms maintained at 4°C. In addition, the Center has access to a power-based, computer Laboratory Data Management System (LDMS). The system serves as a core data management system for data collection and interdisciplinary research project development. The LDMS has the software for word processing, database, spreadsheet graphics and data analysis. The LDMS has the program and database for genome analysis; DNA sequence alignment, site-specific mutagenesis, 3D structure and image analysis.

The Tuskegee University Center for Cancer Research (TUCCR), located in Carver Research Laboratories, was established by the Biology Department in collaboration with other disciplines at the University and the Comprehensive Cancer Center at the University of Alabama at Birmingham. The purpose of the center is to promote high-quality cancer research and to educate cancer researchers and the community about cancer. The Center provides a focal point for cancer research and education by bringing together faculty and students from different disciplines at the University and other institutions outside of the University. The overall goal is to decrease the incidence and spread of cancer in the African American community through two interdependent means: 1) **Research**--Exploring the nature of cancer and its causes, which in turn will lead to the development of new approaches to prevent and treat cancer; 2) **Education**--Educating future generations of cancer researchers, providing continuing education to keep researchers current on recent advances, and providing information to the community through support groups, community outreach, health fairs and other programs related to cancer prevention, early detection and treatment.

The Career Information Center (CIC), located in Armstrong Hall, contains a library of information about medical schools and their curricula, admissions requirements, and financial planning that can be accessed for reference by any student (Biology or non-Biology major). Similar information is available about other programs such as Dentistry, Optometry, Pharmacy, Physical Therapy, Physician's Assistant, and Public Health. The Center also contains printed and computerized information about MCAT and other standardized examinations as well as information on summer enrichment/research programs and post baccalaureate programs. Applications for these examinations and programs are available in the Center.

SPECIAL PROGRAMS

Study Abroad Program with the Organization of Tropical Studies (OTS). The Organization of Tropical Studies is a consortium of approximately 60 universities that provide education experiences in Tropical Ecology and Ethnobiology in Costa Rica. Students may participate in the summer programs or the semester program. For the summer programs, students are provided with either a stipend or a scholarship to cover expenses for courses, housing, and transportation. A Biology Department faculty representative serves as a member of the National Fellowship Advisory Committee (NFAC) to OTS and is responsible for recruiting African American students for the program. The purpose of NFAC is to make minority students aware of the field of Tropical Ecology in order to increase the number of students who may pursue a career in this area.

Minority Access to Research Careers (MARC) Program. The purpose of the MARC Program is to assist faculty engaged in biomedical research at Tuskegee University with the development of competitive research programs, as well as increase the number of underrepresented minorities at Tuskegee University conducting biomedical research. Funding is provided by the National Institutes of Health (NIH) to faculty to establish research laboratories, attend national scientific meetings, establish biomedical seminars for faculty and students, and promote student research through mentoring. Students enrolled in undergraduate research can gain experience from faculty members in Biology or from other biomedical departments on campus. Some of the research conducted on campus has emphasis in cancer, toxicology, or reproductive physiology.

Marine Biology Program. This program represents a concentration in Biology for students who wish to prepare for positions in the area of marine biology and for students anticipating doing graduate work in the area. Students participating in the program will take the appropriate biology courses on campus and will be expected to enroll in marine biology courses at Dauphin Island Sea Laboratory (located on Dauphin Island, Alabama) for at least two summers. Students completing the program will have a major in biology with a concentration in marine biology. Students are required to complete all of the general education requirements, all of the required biology courses and all of the required related courses that are listed for the regular biology major.

Pre-Health Professions. The Biology curriculum provides student with the necessary requirements to gain admission into Medical, Dental, Optometry, Physical Therapy, Physician's Assistant, and Public Health programs. Any student interested in entering a health professions program after graduation from Tuskegee University should consult with the Pre-Medical Coordinator and with the Graduate and Health Professions Advisor. Housed in the Biology Department and coordinated by Biology Department Faculty and Staff is the **Pre-Health Careers Advisory Program (PHCAP).** Students are advised to attend PHCAP sponsored forums focusing on topics relevant to preparing for health careers. Students applying to health professional schools are advised to submit applications to PHCAP. The Coordinator and the PHCAP Committee review applications, edit personal statements, conduct interviews, and mail completed student application packets to the appropriate health professional schools.

GRADUATE STUDY IN BIOLOGY

The graduate study program in biology leads to the Master of Science degree. The offering of a graduate degree in biology has several purposes. One of these is to offer students who have attained the baccalaureate degree in biology or other natural sciences the opportunity to broaden and increase their knowledge in the biological sciences.

Another is the opportunity for students to enter into or expand their experience in the area of experimental research in biology. These objectives may be achieved through selection of elective courses offered in this department and allied areas (chemistry, agriculture, veterinary medicine, etc.), and by the selection of a research area of concentration. The latter is with the assistance of a major advisor in the department who will usually act as the student's major professor. All graduate students are required to teach for one (1) year in the Freshman Biology Program.

Admission: General Admission to graduate study at Tuskegee University is outlined under the Regulations and Procedures for Graduate Instruction. In addition, the prospective candidate should normally have completed an undergraduate curriculum equivalent to the one followed at Tuskegee University.

Examinations: Satisfactory performance on qualifying examinations by the Department may be required of the student prior to application and approval of candidacy. The Graduate Record Examination (GRE) is required prior to admission to candidacy. A final comprehensive oral examination is required covering the general field of Biology and the content of the thesis and research.

STANDARD FOR RETAINING STATUS AS A BIOLOGY MAJOR

It is in the best long-term interest of the students that their fitness for the biology major be assessed as early as possible. Students that require multiple repetition of basic mathematics, chemistry and core biology courses will be assisted in making the necessary adjustments to continue or in making a transition to a more suitable major. A student will attain cautionary status if upon the completion of the Freshman year, the student has received at least one "D" or "E" grade in either Biology 100, 140, 141, 120, 121, 230, 231 or a "D" or "E" grade in Chemistry 231 and Mathematics 107 whenever taken. Cautionary status will come with instructions on obtaining tutorial and other advisory assistance to aid students in successfully pursuing the requirements for the biology major. The accumulation of four grades of "D" and "E" in any combination of the aforementioned courses and Biology 250 and 251, regardless as to whether either was successfully repeated, will result in the forced transition to a different major.

REQUIRED BIOLOGY COURSES

BIOL 100 Freshman Biology Seminar 1 hr
BIOL 120,121 Organismic Biology & Laboratory 4 hrs
BIOL 140,141 Environmental Biology & Laboratory 4 hrs
BIOL 230,231 Cell & Genetic Biology & Laboratory 4 hrs
BIOL 250,251 Molecular Cell & Genetic Biology & Laboratory 4 hrs
BIOL 401 Seminar in Biology 1 hr

ELECTIVES IN BIOLOGY

Nineteen (19) additional hours of Biology must be selected in consultation with student's Biology advisor. No grade less than "C" in any Biology course counts as credit toward graduation.

REQUIRED RELATED COURSES

CHEM 231,233 General Chemistry I & Laboratory 5 hrs
CHEM 232,234 General Chemistry II & Laboratory 5 hrs
CHEM 320,322 Organic Chemistry I & Laboratory 5 hrs
CHEM 321,323 Organic Chemistry II & Laboratory 5 hrs
PHYS 301,303 Elementary General Physics I & Lab 4 hrs

or
PHYS 310,313 General Physics I & Laboratory
PHYS 302,304 Elementary General Physics II & Lab 4 hrs
or
PHYS 311,314 General Physics II & Laboratory
MATH 107 College Algebra & Trigonometry I 4 hrs
MATH 108 College Algebra & Trigonometry II 4 hrs

MINOR IN BIOLOGY

All students wishing to minor in Biology must enroll in twenty (20) hours of Biology courses. Eight of the hours must be the following courses:

BIOL 120/121 Organismic Biology and Laboratory 4 hrs
BIOL 230/231 Cell and Genetic Biology and Laboratory 4 hrs

Twelve additional hours should be selected from approved Biology electives from 200 to 500 level courses. It is advised that students consult with a Biology faculty member before enrolling in the elective courses.

CURRICULUM FOR THE BIOLOGY MAJOR
GENERAL OPTION

Freshman Year

1st Semester			**Cr.**	**2nd Semester**			**Cr.**
BIOL	140	Environmental Bio	3	BIOL	120	Organismic Biology	3
BIOL	141	Environmental Bio Lab	1	BIOL	121	Organismic Biology Lab	1
ENGL	101	English Composition I [#]	3	ENGL	102	English Composition II [#]	3
HIST	103	World Civilization I	3	HIST	104	World Civilization II [+]	3
MATH	107	Coll Algebra & Trig I [@]	4	MATH	108	Coll Algebra & Trig II [@]	4
OREN	100	Freshman Orientation	1	OREN	101	Freshman Orientation	1
PHED		Elective	1	PHED		Elective	1
BIOL	100	Freshman Bio Seminar [#]	1			Total	16
		Total	17				

Sophomore Year

1st Semester			**Cr.**	**2nd Semester**			**Cr.**
BIOL	230	Cell & Genetic Bio [#]	3	BIOL	250	Mol Cell & Gen Bio [#]	3
BIOL	231	Cell & Genetic Bio Lab [#]	1	BIOL	251	Mol Cell & Gen Bio Lab [#]	1
CHEM	231	General Chemistry I	3	CHEM	232	General Chemistry II	3
CHEM	233	Gen Chemistry Lab I	1	CHEM	234	Gen Chemistry Lab II	1
POLS		Elective	3	Creative Expression Competency			2
Creative Expression Competency			3	Critical Thinking Competency			3
SOSC		Elective	3	Computer Competency			3

		Total	17			Total	16

Junior Year

1st Semester			Cr.	2nd Semester			Cr.
BIOL		Elective #	4	BIOL	Elective #		4
CHEM	320	Organic Chemistry I	3	CHEM	321	Organic Chemistry II	3
CHEM	322	Organic Chemistry Lab I	2	CHEM	323	Organic Chemistry Lab II	2
PHYS	301/310	Elem or Gen Phys I	3	PHYS	302/311	Elem or Gen Phys II	3
PHYS	303/313	Gen Phys Lab I	1	PHYS	304/314	Gen Phys Lab II	1
HUMN		Elective	3	SOSC		Elective	3
BIOL	202	Mathematical BIOL	3			Free Elective	3
		Total	15			Total	15

Senior Year

1st Semester			Cr.	2nd Semester			Cr.
BIOL		Elective #	3	BIOL	Elective #		4
BIOL		Elective #	3			Free Elective	3
HUMN		Elective	2	HUMN		Elective	3
SOSC		Elective	3	SOSC		Elective	3
ENGL	203	Scientific Writing	3			Free Elective	3
BIOL	401	Seminar in Biology I #	1			Total	16
		Total	15				

Minimum grade of "C" required in ALL Biology courses and in English 101, 102.
° Chemistry 561, 562 and Environmental Science 500 can be used as Biology electives.
@ Two required Math courses will be selected at levels from or above Math 107, depending upon placement scores.
+ History 345 may be substituted for History 104.

Core Competencies

Creative Expression: Level I (Must complete 2hrs): FPAR 101, MUSC 208, MUSC 110, MUSC 111, MUSC 112, and MUSC 113; Level II (Must complete 3hrs): ENGL 205, ENGL 206, ENGL 207, ENGL 208, and ENGL 220

Computational, Informational, and Technological Skills: CSCI 100, 110, 227, 229, 401, 402, 429

Political, Social, and Cultural Understanding: FPAR 110, PHIL 211, FPAR 203, FPAR 204, POLS 200, POLS 201, SOCI 240 SOCI 241, PSYC 270, PSYC 272, ECON 201, ECON 202, ECON 203, ECON 204, HIST 210, HIST 211

Problem Solving and Critical Thinking: PHIL 203, PHIL 204, PHIL 212, PHIL 237, PHIL 205

Free Electives

Area 1 (Communication): ENGL 201, 309, 324, 327, 332, PHIL 238, SOWK 354
Area 2 (Foreign Language)
Area 3 (Mathematical Reasoning): MATH 207 or 227, 208, 209, 407; PHIL 237

Area 4 (Chemical Analysis): CHEM 237, 238, 307, 308, 401, 403, 402, 404, 541
Area 5 (Business): BUSN 102, 211, 212, 311, 312, 331, 351
Area 6 (Bioethics): PHIL 203, 204, 205, 325, 347, 350; Sociology 470
Area 7 (Computer Technology): CSCI 100, 110, 227, 229, 401, 402, 429

CURRICULUM FOR THE BIOLOGY MAJOR
PRE-HEALTH OPTION

First Year

1st Semester			Cr.	2nd Semester			Cr.
BIOL	230	Principles of Bio I	3	BIOL	120	Principles of Bio II	3
BIOL	231	Principle of Bio I Lab	1	BIOL	121	Principle of Bio II Lab	1
ENGL	101	English Composition I #	3	ENGL	102	English Composition II #	3
HIST	103	World Civilization I	3	HIST	104	World Civilization II +	3
MATH	109	Precalculus	4	BIOL	202	Mathematical Biology	3
OREN	100	Freshman Orientation	1	OREN	101	Freshman Orientation	1
PHED		Elective	1	PHED		Elective	1
BIOL	100	First-Year Bio Sem #	1				
		Total	**17**			**Total**	**16**

Second Year

1st Semester			Cr.	2nd Semester			Cr.
BIOL	250	Mol Cell & Gen Bio #	3	BIOL	309	Genetics	4
BIOL	251	Mol Cell&Gen Lab #	1	BIOL	309	Genetics Lab #	0
CHEM	231	General Chemistry I	4	CHEM	232	General Chemistry II	4
CHEM	233	Gen Chemistry Lab I	1	CHEM	234	Gen Chemistry Lab II	1
MATH	207	Calculus I	4	**Creative Expression Competency**			**2**
		English 204	**3**	**Philosophy (Critical Thinking)**			3
SOSC		Elective	3	**Computer Competency**			3
		Total	**19**			**Total**	**17**

Third Year

1st Semester			Cr.	2nd Semester			Cr.
BIOL		Elective #	4	BIOL		Elective #	4
CHEM	320	Organic Chemistry I	3	CHEM	321	Organic Chemistry II	3
CHEM	322	Organic Chem Lab I	2	CHEM	323	Organic Chemistry Lab II	2
PHYS	301/310	Elem or Gen Phys I	3	PHYS	302/311	Elem or Gen Phys II	3
PHYS	303/313	Gen Phys Lab I	1	PHYS	304/314	Gen Phys Lab II	1
		Free Elective	3			Free Elective	3
		Total	**16**			**Total**	**16**

Fourth Year

1st Semester			**Cr.**	**2nd Semester**			**Cr.**
BIOL		Elective #	3	BIOL	Elective #		4
BIOL		Elective #	3		Free Elective		3
POLS		Elective	3	CHEM	360 Biochemistry		3
		Free Elective	3		Free Elective		3
BIOL	401	Seminar in Biology I #	1			**Total**	**13**
		Total 13					

Minimum grade of "C" required in ALL Biology courses

Core Competencies

Creative Expression: Level I (2hrs required): FPAR 101, MUSC 208, MUSC 110, MUSC 111, MUSC 112, and MUSC 113

Computational, Informational, and Technological Skills: CSCI 100, 110, 227, 229, 401, 402, 429

Political, Social, and Cultural Understanding: FPAR 110, PHIL 211, FPAR 203, FPAR 204, POLS 200, POLS 201, SOCI 240 SOCI 241, PSYC 270, PSYC 272, ECON 201, ECON 202, ECON 203, ECON 204, HIST 210, HIST 211

Mathematical and Quantitative Reasoning: MATH 207 or 227, 208, 209, 407; PHIL 237

In order to fulfill the diversification requirements for upper-level courses, biology majors will need to take at least one upper-level lecture course in Category I and II. Additionally, students may not take more than two courses from Category III.

Category I **At minimum one**	**Category II** **At minimum one**	**Category III** **Eligible BIOL Electives** **No more than 2**
BIOL140/141 Environmental Biology	BIOL 340 Cell Biology	PSYC 567 Abnormal Psychology
BIOL 302 Vertebrate Embryology	BIOL 315 Neurobiology	PHSC Human Anatomy & Physiology I
BIOL Medical Parasitology (TBD)	BIOL Neurophysiology	PHSC Human Anatomy &Physiology II
BIOL206 General Botany	BIOL Renal Physiology	HLSC 303 Medical Terminology
BIOL311 Ecology	BIOL/CHEM Biochemistry 360	Medical Nutritional Therapy I
BIOL305Animal Physiology	BIOL 368 Bioinformatics	Medical Nutritional Therapy II
Human Anatomy and Physiology	BIOL 518 Immunology	BIOL400 Undergraduate Research
BIOL 0204. INVERTEBRATE	Neuroendocrinology (to be	

ZOOLOGY	created) Genomics DNA Microarray Analysis BIOL 301/303 Microbiology/Micro Lab NUSC 302 Nutritional Biochemistry	CHEM 561, Biochemistry I CHEM 562, Biochemistry Lab I EVSC 500 Biostatistics NUSC 580 International Nutrition Problems & Policies NUSC 111Nutrition, Wellness, and Health ****Other courses are subject to advisor and dept head approval**

CURRICULUM FOR CONCENTRATION IN MARINE BIOLOGY

required.

Note: All students with a concentration in Marine Biology must take all of the core courses listed for a regular Biology major. Additional required courses for the concentration are as follows:

BIOL 204/311 Invertebrate Zoology or General Ecology 4 hrs.
BIOL 353 Marine Biology 4 hrs.
BIOL 558 Marine Ecology 4 hrs.

Twelve (12) additional hours of biology must be selected in consultation with student's Biology advisor. Eight (8) of these hours must be Marine Biology courses which are only offered during the summer at the Dauphin Island Sea Lab in Mobile, Alabama. No grade less than "C" in any Biology or Marine Biology course will count as Biology credit toward graduation.

COURSE DESCRIPTIONS

INTRODUCTORY BIOLOGY COURSES FOR NON-SCIENCE MAJORS

BIOL 0111. GENERAL BIOLOGY I. 1st Semester, Summer, On Demand. Lect. 3, 3 credits. An introductory course open to non-biology or non-science majors in which particular emphasis is given to the impact of biological phenomena on human related problems. Includes main aspect of cell structure, function, reproduction, and control mechanisms. Aspects of evolution and mechanisms of heredity are also discussed. The introduction to ecology stresses the effects of man and man-made products on regional and world-wide ecological systems.

BIOL 0112. GENERAL BIOLOGY II. 2nd Semester, Summer, On Demand. Lect. 3, 3 credits. An introductory course open to non-biology or non-science majors. The course presents a brief survey of the diversity of living organisms, their interactions with each other and the micro-environment in which they live. The major details of human anatomy and physiology are discussed as well as the effects of disease. Discussions of animal behavior complete the major components of the course.

INTRODUCTORY BIOLOGY COURSES FOR SCIENCE MAJORS

BIOL 0100. FRESHMAN BIOLOGY SEMINAR. 1st or 2nd Semester. Lect./Lab. 2 hours, 1 credit hour. An introductory biology course required of majors. This course is designed to assist students in transition to the academic community and to increase student awareness of the breadth of career opportunities available to the qualified biology major. Emphasis is placed on the acquisition of academic and management skills, developing an awareness of career options, and the use of microcomputers as learning and information management tools.

BIOL 0120. ORGANISMIC BIOLOGY. 2nd Semester, Summer, On Demand. Lect. 3, 3 credits. Designed for potential biology majors. The course deals with diversity, morphology, physiology, relationships and importance of animals,
plants and other organisms.

BIOL 0121. ORGANISMIC BIOLOGY LABORATORY. 2nd Semester, Summer, On Demand. Lab 2, 1 credit. An introductory level laboratory course to correlate with Biology 120. A survey of organisms and their evolutionary relationship is the main focus of the course content. The anatomical features of representative specimens from the five kingdoms are studied. Experiments demonstrating various physiological processes are also included. Corequisite: BIOL 0120.

BIOL 0140. ENVIRONMENTAL BIOLOGY. 1st and 2nd Semester. Lect. 3, 3 credits. An introductory course offered to potential biology majors, minors and students seeking to fulfill the general science requirement. An examination of ecological principles and environmental problems.

BIOL 0141. ENVIRONMENTAL BIOLOGY LABORATORY. 1st and 2nd Semesters. Lab 1, 1 credit. A laboratory course to coordinate with Biology 140. Experiments and field trips demonstrating ecological principles, environmental problems. Prerequisite: concurrent or previous registration in BIOL 0140.

BIOL 0230. CELL AND GENETIC BIOLOGY. 1st Semester, Summer, On Demand. Lect. 3, 3 credits. A sophomore level course designed specifically for science-oriented curricula and students seeking to fulfill the general science requirement. The course introduces the student to the chemical basis of life, contemporary concepts of the morphology and physiology of cell membranes, cellular organelles and basic genetic principles.

BIOL 0231. CELL AND GENETIC BIOLOGY LABORATORY. 1st Semester, Summer on Demand. Lab 2, 1 credit. A sophomore level course offered to correlate with BIOL 0230. Instructions are given in the use of light microscopy, measurement and data collection and analysis. Experiments are designed to address cell structure/function relationships, chemical reactivity, cell respiration, Mendelian and human genetics and evaluation. Corequisite BIOL 0230.

BIOL 0250. MOLECULAR CELL AND GENETIC BIOLOGY. 2nd Semester. Lect. 3, 3 credits. A course designed for biology majors at the sophomore level. Emphasis is on fundamentals of biochemistry and molecular aspects of genetics. Topics covered include bioenergetics, cellular metabolism, structure and function of proteins and nucleic acids, genetic engineering and gene

regulation. Prerequisite: Biology Majors or permission of the Instructor. BIOL 0230/0231, CHEM 0231. Corequisite: BIOL 0251.

BIOL 0251. MOLECULAR CELL AND GENETIC BIOLOGY. 2nd Semester. Lab 3, 1 credit. Basic biochemical or molecular cell biology techniques, strategies and findings. Topics correlate with Biology 0250. Prerequisites: Biology Majors or permission of the Instructor. BIOL 0230/0231, CHEM 0231. Corequisite: BIOL 0250.

COURSES PRIMARILY FOR UNDERGRADUATES

BIOL 0204. INVERTEBRATE ZOOLOGY. 1st Semester. Lect. 3, Lab 3, 4 credits. Morphology, physiology, phylogeny, taxonomy, and ecology of the invertebrate phyla. Prerequisite: BIOL 0120/0121 or Permission of Instructor.

BIOL 0206. GENERAL BOTANY. 1st Semester. Lect. 3, Lab 2, 4 credits. Survey of the Plant Kingdom. Emphasis on the flowering Plants (Angiosperms): morphology, growth characteristics, anatomy, physiology, reproduction and ecology.

BIOL 0207. PLANT TAXONOMY. On Demand. Lect. 2, Lab 3, 3 credits. Identification of major flowering plants of Macon County. Classification of flowering plants. Field trips. Prerequisite: BIOL 0112 or 0120, or 0206 or consent of instructor.

BIOL 0211. GENERAL PLANT SCIENCE. 2nd Semester. Lect. 2, Lab 3, 3 credits. Same as Plant and Soil Science 211. Introduction to the fundamental plant processes and a survey of horticultural and agronomic plants and practices.

BIOL 0301. GENERAL MICROBIOLOGY. 1st and 2nd Semesters, Summer on Demand. Lect. 3, 3 credits. Emphasis on bacteria, their growth and control, composition and structure, nutrition and metabolism, classification, ecology, role in nature and significance to man. Consideration is also given to other microbial forms. Prerequisite: BIOL 0111 or 0230.

BIOL 0303. GENERAL MICROBIOLOGY LABORATORY. 1st and 2nd Semesters, Summer on Demand. Lab 2, 1 credit. A laboratory course to correlate with BIOL 0301. Corequisite: BIOL 0301.

BIOL 0302. VERTEBRATE EMBRYOLOGY. On Demand. Lect. 3, Lab 4, 4 credits. A study in the comparative development of vertebrate embryos with special emphasis on the frog, chick and pig. In addition to developmental anatomy the course will extend into developmental genetics, cellular differentiation, and developmental organic evolution. Prerequisite: BIOL B120, 0230 and 0250 or consent of the instructor.

BIOL 0305. ANIMAL PHYSIOLOGY. 1st and 2nd Semesters, Summer on Demand. Lect. 3, Lab 3, 4 credits. A lecture/laboratory study of vertebrate systems with special emphasis on circulation, respiration, digestion, excretion, nervous responses, endocrine control, and reproduction. Prerequisite: One year of biology and one year of chemistry.

BIOL 0309. GENETICS. 1st and 2nd Semesters. Lect. 3, Lab 2, 4 credits. This introductory course presents a balanced treatment of the three major areas of genetics: classical, population and molecular. Fundamental microorganisms are also discussed. Classical and molecular laboratory exercises are designed to promote understanding of concepts and interpretation of observed phenomena. Prerequisite: BIOL 0230, 0250/0251, MATH 0107 or permission of instructor.

BIOL 0310. COMPARATIVE VERTEBRATE ANATOMY. On Demand. Lect. 3, Lab 3, 4 credits. A comparative study of the structure of representative vertebrate organisms. Prerequisite: BIOL 0230, 0120 and 0140.

BIOL 0311. GENERAL ECOLOGY. 2nd Semester. Lect. 3, Lab 3, 4 credits. A study of the relationships between organisms and their environments. Emphasis on field work. Prerequisite: Three semesters of biology.

BIOL 0315. GENERAL NEUROBIOLOGY. 2nd Semester. Lect. 3, Lab 3, 4 credits. This course is designed to provide the student with basic information in Neurobiology through lecture and laboratory sessions. Lectures include Gross Anatomy of the nervous system and the general divisions of the brain; organization and functions of the nervous system; membrane biophysics; nerve and muscle relationships; physical excitation and nervous control of the heart; nervous control of body functions; special senses; neutral plasticity, learning and memory. Laboratory sessions include dissection of sheep brain, learning the ionic basis of action potential generation in squid axon using the computer program “neurosim”. Voltage clamp experiments and ion channel reconstitution in bilayer membranes are performed. Prerequisite: BIOL 0120/0121, 0230/0231.

BIOL 0340. CELL BIOLOGY. 1st and 2nd Semesters. Lect. 3, Lab 3, 4 credits. A study of the modern aspects of structure-function relationships in the cell and its organelles. Prerequisite: Three semesters of biology, one year of chemistry, junior or higher standing.

BIOL 0360. BIOCHEMISTRY OF CELL REGULATION. 2nd Semester. Lect. 3, 3 credits. Fundamental principles of biochemistry (protein structure and function, conformational change, kinetics, thermodynamics, equilibrium, etc.) are covered. Cell biology topics will include plasma membrane and membrane proteins, cell signaling cascades, regulation of gene transcription and translation, regulation of the cell cycle, cancer and oncogenes, nerve transmission, and immune response. Also listed as CHEM 360. Prerequisite: BIOL 250; CHEM 231 and 232. Corequisite: CHEM 320.

BIOL 0361. INTRODUCTION TO METHODS IN BIOTECHNOLOGY. 2nd Semester, Lab 3, 1 credit. Methods for the isolation, purification, and assay of biomolecules from tissue, plants, food, or cell extracts. Methods will include biochemical assays, spectroscopy, chromatography, and electrophoresis. Also listed as CHEM 361. Prerequisite: BIOL 251; CHEM 233 and 234. Corequisite: CHEM 322.

BIOL 0400. UNDERGRADUATE RESEARCH. 1st and 2nd Semesters, Summer on Demand. 1-3 credits. Independent research on a biological subject under the guidance of a faculty member. Interested students should determine the type of problem they wish to investigate and consult the

faculty member with whom they wish to work. Upon approval by the faculty advisor and Department Head, a student may register for 1-3 hours credit. No more than three hours may be counted toward major requirements. Prerequisite: junior, senior standing.

BIOL 0401/0402. SEMINAR IN BIOLOGY. 1st and 2nd Semesters. 1 credit. Required of all majors. Designed to familiarize the student with biological literature and its use in the formal presentation of scientific information. Prerequisite: Senior standing.

BIOL 0404. GENERAL HISTOLOGY. On Demand. Lect. 3, Lab 4, 4 credits. A study of the microscopic anatomy of vertebrate tissues and organs as demonstrated by both the light microscope and the electron microscope. Prerequisite: a minimum of 16 hours of biology.

BIOL 0410. MICROTECHNIQUE. On Demand. Lect. 1, Lab 6, 3 credits. Preparation of animal and plant tissues for microscopic study. Prerequisite: A minimum of eight hours of biology and one year of chemistry.

BIOL 0450. MORE SEMINAR IN BIOLOGY. 1st and 2nd Semester. 1 credit. The MORE Seminar will be offered as a 1 credit per semester course (providing up to 4 credits for undergraduates) and is designed on a one year (2 semester) rotation. The classes will be developed as formal presentations by faculty (local and invited) and/or panel discussions of case studies led by students or faculty on issues concerning the responsible conduct of science. Formal presentations of scientific findings by students and/or faculty (local and invited) will also be an integral part of the course as will "journal club" presentations and discussions led by students. Permission of instructor required.

BIOL 0451. BIOMEDICAL LITERATURE AND DATA ANALYSIS. 1st or 2nd Semester. 1 credit. A course to introduce students to information resources at their disposal (Biological Abstracts, Index Medicus, Science Citations, Current
Contents, Reviews, Symposia, computer searches, microfilm, interlibrary loan, reprints) and to develop skill in the critical analysis of scientific papers. Permission of instructor required.

BIOL 0452. COMPUTER ASSISTED BIOSTATISTICS. 1st or 2nd Semester. 1 credit. Designed to provide an opportunity for outstanding students to study advanced topics not covered in required courses. The student is expected to work independently under the supervision and with the assistance of a staff member. Permission of instructor required.

COURSES FOR GRADUATE AND UNDERGRADUATE STUDENTS

BIOL O500. HISTORY OF BIOLOGY. On Demand. Lect. 2, 2 credits. This is a lecture and discussion course intended to familiarize the student with the accomplishments and philosophies of the individuals responsible for the development and advancement of biology as a science. Emphasis will be placed on discoveries and ideas which influenced the direction of subsequent biological study.

BIOL 0501. PROTOZOOLOGY. On Demand. Lect. 3, Lab 3, 3 credits. Morphology, physiology, life history and adaptations of protozoa. Prerequisite: One year of biology or consent of instructor.

BIOL 0502. ADVANCED MICROBIOLOGY. 1st Semester. Lect. 2, Lab 3, 3 credits. Introduction to microbial biochemistry and physiology, nutrition, growth, composition, metabolism, and regulation in the context of macro-molecular organization of selected bacteria. Prerequisite. BIOL 0301.

BIOL 0503. EXPERIMENTAL BIOLOGY. 1st Semester. Lect. 1, Lab 6, 4 credits. A laboratory course designed to provide an introduction to methods, experimental techniques and instruments used in biomedical research. Biochemical theory will be discussed for justification of "best" experimental procedures.

BIOL 0505. PARASITOLOGY. 2nd Semester. Lect. 3, Lab 3, 4 credits. The fundamental principles governing parasites of man and domestic animals. Emphasis is given to the physiology, morphology, life history, diagnosis, control and host-parasite relationships. Labs will include most recent techniques for collecting and preserving parasitological specimens. Prerequisite: minimum of 12 hours of biology, junior or higher standing or consent of the instructor.

BIOL 0507. PLANT PHYSIOLOGY. On Demand. Lect. 2, Lab 6, 4 credits. Fundamental concepts of functions and metabolism in seed plants, including physical and chemical concepts of osmosis, diffusion, water relations, photosynthesis, respiration, enzymes, growth and development and growth regulators. Prerequisites: 16 hours of Biology, CHEM 0320 and Junior Standing.

BIOL 0509. PHYSIOLOGICAL GENETICS. On Demand. Lect. 3, 3 credits. The basic principles of molecular genetics with detailed study of structure function, control and alteration of the individual gene; to include current techniques used in the study of molecular genetics. Emphasis will be placed on eukaryotic and developing systems. Prerequisite: minimum 16 hours of biology and BIOL 0309 or permission of the instructor.

BIOL 0510. ANIMAL BEHAVIOR. On Demand. Lect. 3, Lab 3, 4 credits. An introduction to animal behavior, with emphasis on the animal's relationship to the environment, the ontogeny of behavior, and the physiological basis of behavior. Prerequisite: Minimum of 15 hours in biology.

BIOL 0511. VERTEBRATE ZOOLOGY. On Demand. Lect. 3, Lab 3, 4 credits. A course designed to acquaint the student with the biology of vertebrate populations in their natural habitats. Prerequisite: 15 hours in biology.

BIOL 0513. GENERAL ENTOMOLOGY. Alternate 1st Semesters. Lect. 3, Lab 3, 4 credits. Biology, recognition, and modern methods of controlling major insect pests of plants and animals. Prerequisite: one year of biology and/or Instructor’s Permission.

BIOL 0515. MEDICAL MYCOLOGY. On Demand. Lect. 3, Lab 3, 4 credits. A study of the fungi which cause superficial, intermediate and systemic mycoses in man and other mammals. The laboratory will consist of an in-depth study of the morphology of common contaminants and of pathogenic species of fungi.

BIOL 0518. IMMUNOLOGY. On Demand. Lect. 3, Lab 3, 4 credits. The basic principles of immunity and hypersentivity, mechanisms of antibody formation, chemical and physical characteristics of antigens and antibodies, auto-immunity phenomena, allergy and transplantation immunity.

BIOL 0519. HUMAN GENETICS. Alternate 2nd Semesters. Lect. 3, 3 credits. A modern presentation of the principles of human genetics which emphasizes classical and molecular approaches to understanding the nature of the gene. Information will be derived from family, pedigree, population and molecular studies. Prerequisites: BIOL 0309, MATH 0107, one year of chemistry or permission of the instructor.

BIOL 0540. FOUNDATIONS OF CANCER BIOLOGY. 1st or 2nd Semester. Lect. 3, Lab 0, 3 credits. This course will encompass the fundamentals of cell biology that underlie cancer and cancer progression. In doing so, it will examine selected cutting-edge approaches and findings from the areas of basic cancer research, clinical studies, and community research focusing on prevention and intervention strategies. Prerequisite: Graduate or advanced undergraduate status and two of the following three courses or their equivalents: BIOL 309, BIOL 340, BIOL 360; or permission of instructor.

BIOL 0560. CYTOGENETICS. 1st Semester. Lect. 3, Lab 4, 4 credits. An indepth study of chromosomes; their chemistry, structure, function, aberrations, and behavior. Emphasis will be placed on the human chromosomal complement. Prerequisite: 16 hours of biology to include BIOL 0309.

BIOL 0561. ADVANCED CYTOGENETIC METHODOLOGY. On Demand. Lect. 2, Lab 6, 4 credits. An in-depth presentation of the methodologies of chromosome study. Emphasis will be placed on hands on laboratory experience in (a) culture of cell types used in cytogenetic diagnosis; (b) preparation and recognition of banded chromosomes; (c) recognition of the major types of numerical and structural chromosome abnormalities and (d) photomicrographic principles and techniques including visible and fluorescent light techniques, the interactions of light with film and the preparation of prints from negatives. These topics will be considered in the context of modern cytogenetic studies. Prerequisite: BIOL 0309 and an additional 12 hours in biological sciences.

BIOL 0565. BIOTECHNOLOGY. 2nd Semester. Lect. 2, Lab 6, 4 credits. This course is designed to introduce advanced undergraduates and graduate students to basic recombinant DNA techniques including growth and manipulation of phages and their bacterial hosts; isolation, quantitation, and electrophoretic analysis of DNA; restriction and ligation of DNA cloning in lambda, M13 and plasmid vectors; and site-specific mutagenesis. The focus of the course is hands-on experimentation; however, time will be devoted to discussion of the application of these and other techniques to a variety of research problems. By the end of the course, the student should have a working knowledge of basic recombinant technology, should have an introductory knowledge of more specialized techniques and should be familiar with the terminology and resource literature of genetic engineering. Prerequisite: BIOL 0230/0231, 0250/0251, 0301/0303.

BIOL 0595. SPECIAL ASSIGNMENTS. 1st and 2nd Semesters. 1-3 credits. Special work, such as directed reading, independent study of research, supervised library, laboratory or fieldwork, or presentation of material not available in the formal courses of the department. Upon approval by the faculty advisor and Department Head, a student may register for 1-3 hours credit. The field in which the work is offered will be indicated in the student's record. Prerequisite: Senior or graduate standing.

BIOL 0596. NEUROSCIENCE. 1st Semester. Lect. 3, Lab 3, 4 credits. Course will consist of instruction through lecture and laboratory sessions. Lectures will include: introduction to the nervous system, cellular neuroscience, synaptic functions, structure and function of biological membranes, ion transport through membranes, physiology of ion channels, mechanism of receptor regulation, functional reconstitution of membranes, phospholipid bilayers, neural plasticity, learning and memory. Laboratory sessions will include dissection of sheep brain, making patch pipettes, bilayer formation on bimolecular lipid membrane chamber and reconstitution of receptor proteins on large and small bilayers, multi and single channel recordings, computer analysis of single channel data. Prerequisite: BIOL 0120/0121, 0230/0231.

MARINE BIOLOGY COURSES

The following courses are taught during the summer session at the Dauphin Island Sea Lab. Residence at or near the Dauphin Island Sea Lab is required. Four (4) hour courses meet all day for 3 1/2 days per week for 5 weeks. Two (2) hour courses meet all day for 1 1/2 days per week for 5 weeks. Preregistration with the campus marine sciences liaison officer is required prior to February 1 (no exceptions).

BIOL 0220. COMMERCIAL MARINE FISHERIES. Summer. Lect. 6, Lab 6, 2 credits. Introduction to the exploitation and biology of economically important vertebrates and invertebrates of the Gulf of Mexico, with emphasis on management processes of major species. Prerequisite: Permission of instructor.

BIOL 0353. MARINE BIOLOGY. Summer. Lect. 14, Lab 14, 4 credits. A general survey of marine plants, invertebrates and vertebrates, the communities they form and the physical and chemical factors which influences their lives. Prerequisite: BIOL 0120/0121 and permission of instructor.

BIOL 0421. DOLPHINS AND WHALES. Summer. Lect. 6, Lab 6, 2 credits. Lectures, audiovisual presentations and practical exercises to guide students to further study of the classification, anatomy and ecology of cetaceans. Laboratory exercises focus on anatomy and diseases of cetaceans by carrying out necropsy of animals collected through the Marine Mammal Stranded Network. Prerequisite: BIOL 0310 or 0557 and permission of instructor.

BIOL 0461. INTRODUCTION TO MARINE NEUROBIOLOGY. Summer. Lect. 14, Lab 14, 4 credits. Neuroanatomy and neurophysiology of marine invertebrates and vertebrates, including resting potentials, action potentials, synaptic transmission, neurotransmitters, sensory transduction, muscle innervation, sensorimotor transformations and neurophysiological bases of behavior. Prerequisite: BIOL 0120/0121, CHEM 0231, PHYS 0301, either BIOL 0305 or

0315 or 0596, and permission of instructor.

BIOL 0520. MARINE TECHNICAL METHODS. Summer. Lect. 6, Lab 6, 2 credits. Introduction to the techniques, instrumentation and equipment necessary to perform marine research, with emphasis on field methods. Prerequisite:
Permission of instructor.

BIOL 0523. COASTAL ZONE MANAGEMENT. Summer. Lect. 12, 2 credits. Legal principles underlying environmental management, including the evolution of policy, implementation and regulation in the context of coastal management. Prerequisite: Science or engineering major and permission of instructor.

BIOL 0524. COASTAL CLIMATOLOGY. Summer. Lect.. 6, Lab 6, 2 credits. Study of the controlling factors and features of the world's climates, with particular attention to coastal areas, and real application and interpretation of climate data. Prerequisite: Permission of Instructor.

BIOL 0525. MARINE FISH DISEASES. Summer. Lect. 10, Lab 10, 3 credits. A study of finfish and shellfish diseases. Laboratory will emphasize practical microbiological techniques for disease detection, isolation and identification of organisms. Prerequisite: BIOL 0120/0121 and permission of instructor.

BIOL 0526. MARINE PROTOZOOLOGY. Summer. Lect. 6, Lab 6, 2 credits. A study of the major groups of marine protozoa and methods in protozoology using lectures, field collections, laboratory staining techniques and observations of living protozoa from a variety of habitats. Prerequisite: BIOL 0120/0121 and permission of instructor.

BIOL 0532. ESTUARINE SCIENCE. Summer. Lect. 10, Lab 10, 3 credits. A general survey of estuarine ecosystems with particular emphasis on the interaction between physical, geological, chemical and biological processes in these dynamic ecosystems. Emphasis will be placed on the mechanisms through which physical and chemical processes regulate biological production and organism distributions. Prerequisite: BIOL 0120/0121, either CHEM 0231, PHYS 0301 or EVSC 0201, and permission of instructor.

BIOL 0534. MARINE CONSERVATION BIOLOGY. Summer. Lect. 10, Lab 10, 3 credits. A study of a wide range of topics in marine conservation biology, building on the foundations provided in introductory marine ecology. Prerequisite: BIOL 0311 or 0353 and permission of instructor.

BIOL 0552. MARINE INVERTEBRATE ZOOLOGY. Summer. Lect. 14, Lab 14, 4 credits. Characteristics of the major and minor phyla of marine invertebrates, with emphasis on the comparative evolution of systems in invertebrates. Prerequisite. BIOL 0120/0121 or 0204 and permission of instructor.

BIOL 0554. MARINE BOTANY. Summer. Lect. 14, Lab 14, 4 credits. A general survey of marine algae, vascular and non-vascular plants associated with the marine and estuarine

environment, including structure, reproduction, identification, distribution and ecology. Prerequisite: BIOL 0120/0121 or 0206 and permission of instructor.

BIOL 0556. MARSH ECOLOGY. Alternate Summers. Lect. 14, Lab 14, 4 credits. Study of the floral and faunal elements of various coastal marsh communities, with emphasis on the interaction of physical and biological factors. Prerequisite: BIOL 0120/0121; either 0140/0141 or 0311 or 353, and permission of instructor.

BIOL 0557. MARINE VERTEBRATE ZOOLOGY. Summer. Lect.. 14, Lab 14, 4 credits. General survey of systematics and biology of marine vertebrates (except birds), with emphasis on the major groups of fishes. Prerequisite: BIOL 0120/0121 and permission of instructor.

BIOL 0558. MARINE ECOLOGY. Summer on Demand. Lect. 14, Lab 14. 4 credits. General ecological principles and their application to marine ecosystems, including adaptations of marine organisms with regards to feeding, competition, predation, reproduction and dispersal. Prerequisite: BIOL 0120/0121, either 0140/0141 or 0311 or 0353, and permission of instructor.

BIOL 0559. INTRODUCTION TO OCEANOGRAPHY. Summer. Lect. 14, Lab 14, 4 credits. A general survey of oceanic and near-coastal environments with particular emphasis on the interaction between physical, geological, chemical and biological processes in the ocean. Prerequisite: BIOL 0120/0121, CHEM 0231, PHYS 0301, and permission of instructor.

BIOL 0568. MARINE BEHAVIORAL ECOLOGY. Summer. Lect. 14, Lab 14, 4 credits. An introduction to the principles of animal behavior as applied to marine organisms, including the evolutionary significance of these behaviors, techniques for observing animal behavior in the field and laboratory, the design of behavioral experiments and methods for analyzing behavioral data. Prerequisite: BIOL 0120/0121 and permission of instructor.

BIOL 0569. COASTAL ORNITHOLOGY. Alternate Summers. Lect. 14, Lab 14, 4 credits. Functional ecology of birds, especially in relation to the coastal environment, including mechanics of flight, breeding biology, sociality, foraging behavior, migration and field identification. Prerequisite: Permission of instructor.

BIOL 0661. MARINE NEUROBIOLOGY. Summer. Lect. 14, Lab 14, 5 credits. Neuroanatomy and neurophysiology of marine invertebrates and vertebrates, including resting potentials, action potentials, synaptic transmission, neurotransmitters, sensory transduction, muscle innervation, sensorimotor transformations and neurophysiological bases of behavior. Prerequisite: BIOL 0120/0121, CHEM 0231, PHYS 0301, either BIOL 0305 or 0315 or 0596, and permission of instructor.

COURSE FOR GRADUATE STUDENTS ONLY

BIOL 0604. GENERAL CYTOLOGY. 1st and 2nd Semesters. Lect. 3, Lab 3, 4 credits. Morphology, chemical organization, and function of cytoplasmic and nuclear components of the cell. Cytological and cytochemical techniques. Prerequisite: course in organic chemistry and consent of instructor.

BIOL 0605. EXPERIMENTAL PARASITOLOGY. On Demand. Lect. 2, Lab 3, 3 credits. An advanced study encompassing animal parasites. Included are adaptations to parasitism, host-parasite relationships, immunological aspects and experimental procedures employed in the analysis of parasitism. Prerequisite: BIOL 0505 or its equivalent.

BIOL 0610. MOLECULAR BIOLOGY. On Demand. Lect. 3, 3 credits. A lecture discussion course with emphasis on gene structure, mutation, evolution, genetic load and expression, the biochemical consequences of these on DNA replication, RNA transcription, and protein synthesis. Attention will also be focused on the molecular basis of regulatory mechanisms in living systems.

BIOL 0620. PHYTOHORMONE AND VITAMINS. 1st Semester. Lect. 3, 3 credits. Same as Plant & Soil Science 650. Chemistry, physiology and practical application of phytohormone, vitamins in development of plants. Prerequisite: BIOL 0507 or its equivalent.

BIOL 0630. EXPERIMENTAL EMBRYOLOGY. Offered on Demand. Lect. 2, Lab 4, 4 credits. An analysis of development in the embryo and other morphogenetic systems as revealed by experimentation. Included are topics and experiments in classical experimental embryology, chemical embryology, tissue interaction, hormonal control of development of regeneration. Prerequisite: BIOL 0302, or its equivalent.

BIOL 0640. EXPERIMENTAL CYTOLOGY. Offered on Demand. Lect. 1, Lab 5, 3 credits. Discussions of current problems in some areas of cytological research. Selection of and experimentation with a research problem by individuals in the course form the main direction for discussion. Prerequisite: BIOL 0604 or equivalent and instructor's consent.

BIOL 0650. BIOLOGY SEMINAR. 1st and 2nd Semesters. 1 credit. Required of all graduate students in biology. Review of literature and research in the various areas of biology to be presented orally. Each student will be advised by a member of the graduate faculty in biology. Prerequisite: Graduate standing in biology. BIOL 0651. SAME AS BIOL 0650 BIOLOGY SEMINAR.

BIOL 0652. TOPICS IN MODERN BIOLOGY. 1st and 2nd Semesters. 1 credit. A one-semester course in which the main theme or topic for discussion during any semester will vary from year to year. Prerequisite: Graduate standing.

BIOL 0700. RESEARCH IN BIOLOGY. 1st and 2nd Semesters, Summer on Demand. 1-6 credits. Arranged under supervision of a major advisor in the specific area of research interest. Prerequisite: Graduate standing.

BIOL 0752. CONTINUOUS REGISTRATION. 1st and 2nd Semesters, Summer on Demand. 0 credit. For students writing a thesis and/or studying for examinations.

BIOL 0754. CANDIDATE FOR DEGREE. 0 credit. For students who have finished all requirements and are graduating that semester.

CHEMISTRY

Undergraduate Study: A program is offered for the Chemistry major that leads to the Bachelor of Science degree. The Tuskegee University chemistry program is designed to prepare students for entry into graduate study, professional health-related schools or governmental or industrial employment as chemists. The curriculum required of chemistry major provides general education core courses in addition to the chemistry core courses.

The undergraduate program is approved by the American Chemical Society, Committee on Professional Training (CPT), 1155-16th Street, NW, Washington, DC 20036. ACS approved undergraduate programs are recognized for offering high quality bachelor's degrees in chemistry and chemistry-related sciences. Programs must undergo a review process and comply with guidelines developed by the CPT. Students majoring in Chemistry who complete selected additional requirements receive certification from the American Chemical Society.

The Department of Chemistry, in cooperation with other departments, supports dual majors for students preparing for careers requiring interdisciplinary studies. Students seeking a dual major must receive approval from both departments involved.

CURRICULUM FOR THE CHEMISTRY MAJOR

Freshman Year

1st Semester			2nd		
COURSE	**DESCRIPTION**	CREDI	**COURSE**	**DESCRIPTION**	**CREDIT**
CHEM 231	General Chemistry I	4	CHEM 232	General Chemistry II	4
CHEM 233	General Chemistry Lab	1	CHEM 234	General Chemistry Lab	1
[1]ENGL 101	English	3	[1]ENGL 102	English	3
HIST 103	History	3	HIST 104	History	3
[2]MATH 207	Calculus I	4	MATH 208	Calculus II	4
UNIV 101	Orientation	1	UNIV 102	Orientation	1
PHED	Physical Education	1	PHED	Physical Education	1
	TOTAL	**17**		**TOTAL**	**17**

Sophomore Year

1st Semester			2nd		
COURSE	**DESCRIPTION**	**CREDIT**	**COURSE**	**DESCRIPTION**	**CREDIT**
CHEM 237	Inorganic Chemistry	3	CHEM 307	Quantitative Analysis	3
CHEM 238	Inorganic Chemistry	1	CHEM 308	Quantitative Analysis	2
PHYS 310	General Physics I	3	CHEM 320	Organic Chemistry I	3
PHYS 313	General Physics Lab I	1	CHEM 322	Organic Chemistry I	2
MATH 209	Calculus III	4	PHYS 311	General Physics II	3
Elective	Social/Behavioral	3	PHYS 314	General Physics Lab II	1
			Elective	Humanities/Fine Arts	3
	TOTAL	**15**		**TOTAL**	**17**

Junior Year

1st			2nd		

COURSE	DESCRIPTION	CREDIT	COURSE	DESCRIPTION	CREDIT
CSCI 205	Computer Science	3	CHEM 402	Physical Chemistry II	3
CHEM 401	Physical Chemistry I	3	CHEM 402	Physical Chemistry II	2
CHEM 403	Physical Chemistry Lab	2	2d Option	Lecture or Lecture/Lab	3-4
2d Option	Lecture or Lecture/Lab	3-4	Elective	Humanities/Fine Arts	2-3
CHEM 321	Organic Chemistry II	3	Elective	Social	3
CHEM 323	Organic Chemistry II	2	CHEM 399	Undergraduate Research	1-3
	TOTAL	**16-17**		**TOTAL**	**14-18**

Senior Year

1st			2nd		
COURSE	**DESCRIPTION**	**CREDI**	**COURSE**	**DESCRIPTION**	**CREDIT**
[3]Elective	Advanced Chemistry	1-3	[3]Elective	Advanced Chemistry	1-3
[3]CHEM	Instrumental Analysis	3	[3]CHEM 513	Advanced Inorganic	3
2d Option	Lecture or Lecture/Lab	3-4	Elective	Fine Arts/Humanities	3
CHEM 551	Chemistry Seminar	1	2d Option	Lecture or Lecture/Lab	3-4
Elective	Social/Behavioral	3	CHEM 552	Chemistry Seminar	1
CHEM 499	Undergraduate Research	1-3	[4]Elective	College Approved	3
	TOTAL	**12-17**		**TOTAL**	**14-17**

[1] - A minimum grade of "C" is required

[2] - Initial mathematics placement will be determined by ACT/SAT scores

[3] - Courses only required for students completing the ACS Approved Degree.

For certification by the American chemical Society, a student must pass CHEM 513, CHEM 541, the equivalent of 3 semester hours of biochemistry and an additional six credit hours of advanced chemistry (e.g., undergraduate research and/or specified 500-level courses). A student may choose to take six credit hours of advanced physics or six credit hours of advanced mathematics or a combination of these subjects as a replacement for advanced chemistry

[4] – If necessary, College approved elective required to complete the 120 semester hours required for graduation.

SECOND-OPTION

The curriculum for the chemistry major at Tuskegee University requires a second-option in one of the following four areas: **biology/biochemistry**; **environmental science**; **materials science**; or **mathematics**. Twelve credits must be completed in the second-option, as indicated below. An equivalent course may be substituted for the recommended course with Department and College approval.

Biology/Biochemistry

Course Credit Hrs.

BIOL 230 (Cell Biology)	3
BIOL 231 (Cell Biology Lab)	1
*CHEM 360 (Biochemistry of Cell Regulation)	3
*CHEM 361 (Biochemistry of Cell Regulation Lab)	1
*CHEM 561 (Biochemistry I)	3
*CHEM 562 (Biochemistry Lab I)	1
*CHEM 563 (Biochemistry II)	3
*CHEM 564 (Biochemistry Lab II)	1

*After completing BIOL 230/231 or a College approved equivalent (4 credit hours), students may complete requirements for this option (for a total of 12 credit hours) through one of the following:

1.	**CHEM 360/361; CHEM 563/564;**	**8 hours**
2.	**CHEM 561/562; CHEM 563/564;**	**8 hours**

Environmental Science:

Course	Credit Hrs
1ESC 210 (General Soil Science)	4
1ESC 404 (Environmental Science)	3
1ESC 504 (Environmental Science II)	3
1ESC 515 (Water Chemistry)	3

Materials Science:

Course	Credit Hrs.
MENG 211 (Statics)	3
MENG 310 (Experimental Mechanics Lab)	2
MENG 316 (Strength of Materials)	3
MENG 318 (Materials Engineering)	3

MENG 319 (Advanced Materials Lab.)	1

Mathematics:

[1]Course	Credit Hrs.
MATH 307 (Differential Equations)	3
MATH 407 (Linear Algebra)	3
MATH 461 (Engineering Math)	3

[1]Plus one of the following: Modern Algebra - MATH 408 (3 cr.); Intro to Applied Statistics - MATH 504 (3 cr.); Advanced Calculus I - MATH 505 (3 cr.).

***The requirement for a minor in chemistry is completion of the following 19 credit hours (beyond General Chemistry): CHEM 237 (3 credits), CHEM 320 (3 credits), CHEM 321* (3 credits), CHEM 322 (2 credits), CHEM 323 (2 credits), CHEM 307**

(3 credits) and CHEM 401 (3 credits)

Graduate Study: The Chemistry Department at Tuskegee University offers a Master of Science degree program. The M.S. program in Chemistry includes a research thesis in the major areas of chemistry (analytical, organic, physical, inorganic, biochemistry and polymer chemistry/materials science) as well as required selected courses from these areas. Chemistry graduate students often satisfy their research requirement by working with research professors in other College department or through collaborations with research professors in other Colleges. In these cases, students are assigned a research mentor in both departments.

Adequately prepared students should enroll in four required core courses (**CHEM 0513; 0541; 0622 and 0634 or 0635**) during the first year. If the student has a course deficiency, advanced undergraduate courses are assigned to remove the deficiency.

A candidate for the Master's degree is required to (1) Complete twenty-four credit hours of course work; (2) Satisfy an approved departmental option in Computer Science; (3) Prepare a thesis based on original research; (4) Demonstrate an adequate general knowledge of chemistry by passing departmental qualifying examinations in General, Organic, Analytical and Physical Chemistry prior to the defense of the thesis and (5) Satisfy all requirements defined by Office of Graduate Programs

Admission to the graduate program may be secured through the Admissions Office. There are a limited number of assistantships and fellowships available in the Department. Students requiring financial support may obtain applications from the Chemistry Department.

Course Descriptions

CHEM 0101. INTRODUCTION TO CHEMISTRY. 1st and 2nd Semesters. Lect.3, 3 credits. An introduction to chemical principles and fundamentals of mathematics in preparation for Chemistry 231. Topics include: math fundamentals, atomic theory, rules of chemical combinations and chemical equations and nomenclature. Students who have not had high school chemistry and/or low Math ACT scores may be advised to take this course. This course is not intended as a science elective for non-science majors. This course will not substitute for CHEM 231, General College Chemistry I.

CHEM 0200. CHEMICAL SCIENCE. 1st Semester. Lect. 3, 3 credits. A summary of modern chemistry and its relation to aspects of everyday living. The language of chemistry, the tools of the chemist, and chemical theories will be presented. The importance of these concepts to a non-scientist will be discussed.

CHEM 0221. GENERAL, ORGANIC AND BIOLOGICAL CHEMISTRY I. 1st Semester. Lect. 3, 3 credits. An introduction to general chemistry for the Allied Health Sciences. Topics included are: atomic structure, periodic table, chemical bonds, states of matter and their physical properties, inorganic compounds, solutions and mixtures, radioactivity, hydrocarbons and their reactions. The course is designed for nursing, allied health education and other students pursuing careers that require an integrated specialized knowledge of selected concepts from general, organic and biological chemistry. Corequisite: CHEM 0223.

CHEM 0222. GENERAL, ORGANIC AND BIOLOGICAL CHEMISTRY II. 2nd Semester. Lect. 3, 3 credits. A continuation of CHEM 0221 with an introduction to the study of organic and biological chemistry. Topics included are carbon compound families, structural properties and reactions, biological compound families, structural properties and reactions, nucleic acids, essential fluids, and the metabolic reactions of carbohydrates, proteins and lipids. Prerequisite: CHEM 0221. Corequisite: CHEM 0224.

CHEM 0223. GENERAL, ORGANIC AND BIOLOGICAL CHEMISTRY LABORATORY I. 1st Semester. Lab 2, 1 credit. Laboratory experiments that correlate with CHEM 0221. Corequisite: CHEM 0221.

CHEM 0224. GENERAL, ORGANIC AND BIOLOGICAL CHEMISTRY LABORATORY II. 2nd Semester. Lab 2, 1 credit. Laboratory experiments that correlate with CHEM 0222. Corequisite: CHEM 0222; Prerequisite: CHEM 0223.

CHEM 0299. UNDERGRADUATE RESEARCH. Summer, 2 credits. Introduction to the process of scientific research for undergraduate students enrolled in science, technology, and engineering and mathematics (STEM) disciplines. A study of the elements of good research and how research is interpreted, reported and disseminated. An independent study project with presentation is required.
Prerequisite: Consent of instructor.

CHEM 0231. GENERAL CHEMISTRY I. 1st and 2nd Semesters, Summer. Lect. 3, Recitation 1, 4 credits. The principles of chemistry. Topics covered include: stoichiometry, atomic structure and periodic table, molecular structure, gas laws, kinetic molecular theory, oxidation and reduction, and properties of solids and liquids. The course is intended for science and engineering students who need a rigorous introductory course in chemistry as a prerequisite for advanced courses. Corequisites: CHEM 0233

CHEM 0232. GENERAL CHEMISTRY II. 1st and 2nd Semesters, Summer. Lect. 3, Recitation 1, 4 credits. Topics studied include acids and bases, chemical kinetics, chemical equilibrium. The elements and their compounds are studied in terms of periodic relationships. Schemes for the detection and identification of the elements are used to illustrate descriptive chemistry and the principles of chemical equilibria. Prerequisite: CHEM 0231. Corequisite: CHEM 0234.

CHEM 0233. GENERAL CHEMISTRY LABORATORY I. 1st and 2nd Semesters, Summer. Lab 3, 1 credit. Introduction to Chemical Laboratory Techniques. Exercises exemplifying the principles of stoichiometry, chemical reactivity, chemical and physical separations, gas laws and molecular structure are performed. Techniques for the measurement of mass, volume, pressure, and temperature, and the graphical presentation of data are emphasized.

CHEM 0234. GENERAL CHEMISTRY LABORATORY II. 1st and 2nd Semesters, Summer. Lab 3, 1 credit. A continuation of CHEM 0233. The principles presented in CHEM 0232 are applied to the laboratory study of rates of reactions, chemical equilibria, electrochemical cells and acid base and redox reactions. Limited qualitative analysis is included. Corequisite: CHEM 0232. Prerequisite: CHEM 0233.

CHEM 0236. INTRODUCTION TO ANALYTICAL CHEMISTRY. Offered on demand. Lect. 1, Lab 6, 3 credits. This course covers theory and practical aspects of chemical analysis. Areas covered are: volumetric analysis, gravimetric analysis, redox reactions, spectrophotometric analysis, and chromatographic analysis. This course emphasizes solutions to environmental problems. It can be substituted for CHEM 0233 and CHEM 0234. Prerequisite: Consent of instructor.

CHEM 0237. INORGANIC CHEMISTRY. 1st Semester. Lect. 3, 3 credits. Acid/base chemistry, aqueous/non-aqueous chemistry, bonding models in inorganic chemistry, coordination chemistry, and descriptive chemistry of the main group transition elements.
Prerequisite: CHEM 0232.

CHEM 238. INTERMEDIATE INORGANIC SYNTHESIS. 1st Semester. Lab 3, 1 credit. The course features synthesis, purification and characterization of inorganic compounds. Main group compounds and transition metal complexes are prepared and characterized. The characterization of the compounds will be based on spectroscopic methods such as FTIR, NMR, and UV; magnetic susceptibility measurements and thermogravimetric analysis. Prerequisite: CHEM 234. Corequisite: CHEM 237.

CHEM 0307. QUANTITATIVE ANALYSIS. 2nd Semester. Lect. 3, 3 credits. Theory and methodology of chemical analysis, classical, electrochemical, spectrochemical and chromatographic methods. Prerequisites: CHEM 0232 and 0234. Corequisite: CHEM 0308.

CHEM 0308. QUANTITATIVE ANALYSIS LABORATORY. 2nd Semester. Lab 6, 2 credits. Laboratory application of selected methods presented in CHEM 0307. Corequisite: CHEM 0307.

CHEM 0320. ORGANIC CHEMISTRY I. 1st Semester, Summer. Lect. 3, 3 credits. Nomenclature, physical properties and reactions of carbon compounds; reaction mechanisms; spectroscopy as an aid to the elucidation of molecular structures. Prerequisites: CHEM 0232 and 0234. Corequisite: CHEM 0322.

CHEM 0321. ORGANIC CHEMISTRY II. 1st and 2nd Semesters. Lect. 3, 3 credits. Continuation of CHEM 0320. Prerequisite: CHEM 0320. Corequisite: CHEM 0323.

CHEM 0322. ORGANIC CHEMISTRY LABORATORY I. 1st Semester. Lab 6, 2 credits. Illustrative practical applications of the principles presented in CHEM 0320. Lab assignments are project-based. Corequisite: CHEM 0320.

CHEM 0323. ORGANIC CHEMISTRY LABORATORY II. 2nd Semester. Lab 6, 2 credits. Continuation of CHEM 0322. Prerequisite: CHEM 0322. Corequisite: CHEM 0321.

CHEM 0360. BIOCHEMISTRY OF CELL REGULATION. 2nd semester, Lect. 3, 3 credits. Fundamental principles of biochemistry (protein structure and function, conformational change, kinetics, thermodynamics, equilibrium, etc.) are covered. Cell biology topics will include plasma membrane and membrane proteins, cellsignaling cascades, regulation of gene transcription and translation, regulation of
the cell cycle, cancer and oncogenes, nerve transmission, and immune response. Also listed as BIOL 360. Prerequisite: CHEM 231 and 322. Corequisite: CHEM 320.

CHEM 0361. INTRODUCTION TO METHODS IN BIOTECHNOLOGY. 2nd semester, Lab 3, 1 credit. Methods for the isolation, purification, and assay of biomolecules from tissue, plants, food, or cell extracts. Methods will include biochemical assays, spectroscopy, chromatography, and electrophoresis. Also listed as BIOL 361. Prerequisite: CHEM 233 and 234. Corequisite: CHEM 322.

CHEM 0399. UNDERGRADUATE RESEARCH. 1st and 2nd Semesters, Summer. 1-5 credits. The course is intended to introduce chemistry majors to the techniques of laboratory research. They will complete projects assigned by a research faculty member, under his or her supervision. Prerequisite: Consent of Instructor.

CHEM 0401. PHYSICAL CHEMISTRY. 1st Semester. Lect. 3, 3 credits. Thermodynamics and its application to physical-chemical systems; properties of gases, liquids and solids; chemical kinetics; atomic and molecular structure; spectroscopy; and an introduction to statistical mechanics. Prerequisites: MATH 0208, PHYS 0311, CHEM 320, and CHEM 0307.

CHEM 0402. PHYSICAL CHEMISTRY. 2nd Semester. Lect. 3, 3 credits. Continuation of CHEM 0401. Prerequisite: CHEM 0401.

CHEM 0403. EXPERIMENTAL PHYSICAL CHEMISTRY. 1st Semester. Lab 6, 2 credits. Instruction in physical chemistry laboratory procedures, including the use of vacuum systems, electrical measurements, optical measurements and spectroscopy. The experiments are intended to illustrate the theoretical principles discussed in the lecture. Prerequisites: CHEM 0322 and CHEM 0308.
Corequsite: CHEM 0401

CHEM 0404. EXPERIMENTAL PHYSICAL CHEMISTRY. 2nd Semester. Lab 6, 2 credits. Continuation of CHEM 0403. Prerequisite: CHEM 0403. Corequisite: CHEM 0402.

CHEM 0499. UNDERGRADUATE RESEARCH. 1st and 2nd Semesters, Summer. 1-5 credits. The course is intended to introduce chemistry majors to the techniques of laboratory research. They will complete projects assigned by a research faculty member, under his or her supervision. A formal report required. Prerequisite: Consent of Instructor.

CHEM 0500. ADVANCED INORGANIC SYNTHESIS. 2nd Semester. Lect. 1, Lab 6, 3 credits. Synthesis and characterization of inorganic compounds. Various modern techniques (vacuum, inert-atmosphere, electrolytic, spectroscopic) are utilized. Prerequisites: CHEM 0404, CHEM 0323, CHEM 0308, and CHEM 0238.

CHEM 0513. ADVANCED INORGANIC CHEMISTRY. 1st or 2nd Semester. Lect. 3, 3 credits. Chemistry of elements other than carbon. Topics emphasize atomic and molecular structure, ionic and covalent bonding theories, symmetry, acid base theories, transition metal compounds and chemistry of selected representative elements. Prerequisite: CHEM 0401 and CHEM 237.

CHEM 0524. POLYMER CHEMISTRY. 1st or 2nd Semester. Lect. 2; Lab 6, 4 credits. A survey course on polymeric materials. Areas covered are the synthesis and reactions of polymers, thermodynamics and kinetics of polymerization, the physical characterization of polymers and the fabrication, testing and uses of polymers. These topics are integrated into both the lecture and the laboratory.
Prerequisites: CHEM 0321 and 0323; CHEM 0402 and 0404.

CHEM 0541. INSTRUMENTAL ANALYSIS. 1st Semester. Lect. 2. Lab 3, 3 credits. The application of modern analytical techniques to analysis with emphasis on the instrumentation and the interpretation of experimental data. Prerequisites: CHEM 0307 and 0308; CHEM 0401.

CHEM 0551. SEMINAR. 1st Semester. Lect. 1, 1 credit. Open to Senior
chemistry majors only. The student is acquainted with latest advances in
chemical knowledge by means of papers, written reports, and discussions. Students are required to conduct literature searches.

CHEM 0552. SEMINAR. 2nd Semester. Lect. 1, 1 credit. Continuation of CHEM 0551. Prerequisite: CHEM 0551.

CHEM 0561. BIOCHEMISTRY I. 1st and 2nd Semesters. Lect. 3, 3 credits. Chemistry and metabolism of major biological materials, and their roles in the biochemical process of living organisms.
Prerequisite: CHEM 0321.

CHEM 0562. BIOCHEMISTRY LABORATORY I. 1st and 2nd Semesters. Lab. 3, 1 credit. Laboratory application and illustration of the principles covered in CHEM 0561.

CHEM 0563. BIOCHEMISTRY II. 2nd Semester. Lect. 3, 3 credits. Continuation of CHEM 561 with emphasis on the structure and function of biomolecules, biosynthesis, genome structure and regulation of gene expression. Prerequisite: CHEM 561 or CHEM 360

CHEM 0564. BIOCHEMISTRY LABORATORY II. 2nd semester. Lab 3, 1 credit. Continuation of CHEM 562 with experiments designed to satisfy both the chemical and molecular biology aspects of biochemistry. Prerequisite: CHEM 562.

COURSES FOR GRADUATE STUDENTS ONLY

CHEM 0614. SPECIAL TOPICS IN INORGANIC CHEMISTRY. Offered on demand. Lect. 3, 3 credits. Topics may be selected from the following: transition metal chemistry, organometallic chemistry, kinetics and mechanisms, catalysis, crystallography, non-aqueous solvents; radio-chemistry; detailed chemistry of selected elements. Prerequisite: CHEM 0513.

CHEM 0622. ADVANCED ORGANIC CHEMISTRY. 1st or 2nd Semester. Lect. 3, 3 credits. Fundamental principles and theories of organic chemistry at an advanced level. Prerequisite: CHEM 0321 and CHEM 0402.

CHEM 0623. SPECIAL TOPICS IN ORGANIC CHEMISTRY. Offered on demand. Lect. 3, 3 credits. Topics may be selected from the following: stereochemistry, molecular orbital theory; free radicals; terpenes; hereocyclic compounds; photochemistry; new techniques in synthesis. Prerequisites: CHEM 0321 and CHEM 0402.

CHEM 0634. CHEMICAL THERMODYNAMICS. Offered on demand. Lect. 3, 3 credits. Applications of the first and second laws to real gases, liquids and solutions and an advanced treatment of chemical equilibria. Prerequisite: CHEM 0402.

CHEM 0635. SPECIAL TOPICS IN PHYSICAL CHEMISTRY. Offered on demand. Lect. 3, 3 credits. Topics may be selected from the following: quantum mechanics, quantum chemistry; atomic and molecular structure; statistical thermodynamics; and others.
Prerequisite: CHEM 0402.

CHEM 0641. SPECIAL TOPICS IN ANALYTICAL CHEMISTRY. Offered on demand. Lect 3. 3 credits. Topics are selected from modern procedures and methods of analysis. Prerequisite: CHEM 402.

CHEM 0651/652. SEMINAR. 1st and 2nd Semester, respectively. 1 credit. Participation by faculty, students, and guest lecturers. Required for all chemistry graduate students.

CHEM 0662. SPECIAL TOPICS IN BIOCHEMISTRY. Offered on demand. Lect.3, 3 credits. Topics may be selected from the following: nucleic acids and nucleoproteins; genetic aspects of metabolism; general metabolism; porphyrins; oxidation in biological systems. Prerequisite: CHEM 0561.

CHEM 0663. MOLECULAR BIOCHEMISTRY. Offered on demand. Lect. 3, 3 credits. The chemistry and metabolism of biological macromolecules, including proteins and nucleic acids. Biochemical oxidations and energetics, electron transport, enzyme properties, metabolic regulation and photosynthesis are included. Prerequisite: CHEM 0561.

CHEM 0700. RESEARCH. 1st and 2nd Semesters, Summer. 1-6 credits. Arranged under the supervision of a major advisor in the specific area of research interest. Prerequisite: Graduate Status.

CHEM 0752. CONTINUOUS REGISTRATION. 1st and 2nd Semesters, Summer. 0 credit. For students writing their thesis and/or studying for examinations.

CHEM 0754. CANDIDATE FOR DEGREE. 1st and 2nd Semesters, Summer. 0 credit. For students who have finished all requirements and are graduating during the current semester.

COLLEGE OF BUSINESS and INFORMATION SCIENCE

MISSION STATEMENT

The primary mission of the College of Business and Information Science, as a career-oriented unit, is to provide its students a challenging opportunity for a liberal, technological, and professional education. Graduates of the College of Business and Information Science are expected to be well-informed and responsible individuals capable of succeeding in both private and public sectors in a global and diverse society, with the desire to engage in lifelong learning.

The programs of the College are designed to achieve the following objectives:

Instruction:

To produce graduates with a broad education in the arts, sciences, and humanities

To produce graduates with a thorough knowledge and understanding of their respective fields of study.

To prepare graduates with sufficient knowledge and skill in a field of specialization for careers in the public or private sector, or graduate school.
To prepare graduates who can think creatively and critically, conduct themselves ethically and assume leadership roles in a global society.

Research:
To preserve, refine, and develop further the bodies of knowledge already discovered in business, computer and information science.
To discover new knowledge for continued growth of individuals and society and for the enrichment of the College's instructional and service programs.
To discover innovative applications of knowledge to help resolve problems of modern society.

Service:
To provide and support continuing education programs for the community through outreach programs
To provide consultant services to business and the community at large
To conduct seminars, workshops, and other public service activities

STUDENT LEARNING OUTCOMES

The student learning outcomes for the College of Business and Information Science are:

To develop communication skills to make effective presentations, prepare reports, and articulate their thoughts and ideas to others
To apply computing and information technology and problem-solving skills to problems and situations
To produce graduates who can think creatively and critically
To develop the ability to function in groups
To develop ethical reasoning skills
To develop an appreciation of the global dimension of business
To develop sufficient knowledge and skill in a student's chosen field of specialization for success in business and/or graduate school

DEGREES OFFERED

The Bachelor of Science degree is offered with majors in Accounting, Business Administration, Computer Science, Economics, Finance, Hospitality Management, Sales and Marketing, and Supply Chain Management.

ACADEMIC PROGRAMS' DESCRIPTION

The College of Business and Information Science is organized into three departments offering nine majors. The business programs are accredited by The Association to Advance Collegiate Schools of Business (AACSB International).

DEPARTMENT OF MANAGEMENT

The Department of Management offers majors in business administration, hospitality management, sales and marketing, and supply chain management. Specific education in each major contains both theoretical and application components to enhance student competitiveness in the job market. Many of our students are recruited by Fortune 500 companies. Course study includes communications, information technology, and analytical skills. Internship and co-op experiences are offered to enhance student real-world experience. Department faculty has industry experience that is transferable to the classroom. This strengthens the learning environment and enhances the student experience. The curriculum in each of the departmental majors offered is designed develop and enhance the following competencies.

BUSINESS ADMINISTRATION

An ability to demonstrate knowledge of core business skills.
An ability to demonstrate a fundamental and intermediate knowledge of existing theory of management.
An ability to demonstrate an understanding of quantitative methods as applied to business problems.
An ability to effectively communicate how to use business concepts and principles
An ability to develop ethical perspectives and sense of moral responsibility.
An ability to analyze and operate in different global economic and business systems.
An ability to demonstrate the skills, knowledge and ability to research, synthesize, make decisions, develop / implement and use feedback to operate and control business systems operations.

HOSPITALITY MANAGEMENT

An ability to demonstrate knowledge of core business skills related to the hospitality industry.
An ability to demonstrate a fundamental and intermediate knowledge of existing theory of hospitality management.
An ability to demonstrate an understanding of quantitative methods necessary for fiscal responsibility on hospitality related enterprises.
An ability to effectively communicate with stakeholders business concepts, principles, and systems
An ability to develop ethical perspectives and sense of moral responsibility.
An ability to provide unbiased service across cultures.
An ability to analyze and operate in different global economic and business systems.

SALES AND MARKETING

a. An ability to demonstrate knowledge of core business skills.

b. An ability to demonstrate a fundamental and intermediate knowledge of existing sales and marketing theory
c. An ability to demonstrate analytical and problem solving skills required to address business problems.
d. An ability to effectively communicate across the channel of distribution business concepts, and principles.
e. An ability to develop ethical perspectives and sense of moral responsibility.
f. An ability to analyze and operate in different global economic and business systems.
g. An ability to demonstrate the skills, knowledge and ability to research, synthesize, make decisions, develop / implement and use feedback to operate and control business systems operations.
a. An ability to demonstrate knowledge of procurement methods and the importance of developing buyer-supplier relationships.

SUPPLY CHAIN MANAGEMENT

b. An ability to demonstrate knowledge of core business skills.
c. An ability to demonstrate knowledge of procurement methods and the importance of developing buyer-supplier relationships.
d. An ability to demonstrate knowledge of E-Business and E-Business System Development.
e. An ability to demonstrate knowledge of creation of database management system.
f. An ability to demonstrate knowledge of tools and methodologies in product/service transformation processes.
g. An ability to demonstrate knowledge of logistics, including transport service, customer service distribution operations, warehousing, packaging, carrier selection, transport costing, and negotiations.
h. An ability to demonstrate knowledge of principles, theories, and techniques in supply chain management operations and logistics in a global environment, including global supply chain structure and relationship with global supply chain members.

DEPARTMENT OF COMPUTER SCIENCE

The department offers a curriculum which leads to the degree of Bachelor of Science in Computer Science with two concentrations: **General Computer Science, and Information Systems**. The objective of this curriculum is to prepare students solidly in both hardware and software areas of Computer Science. This prepares the students to work for industry, government, and for graduate studies.

The course offerings are supported by state of the art facilities. Seven computer labs including multimedia lab, high performance computing lab, software engineering lab, and special projects labs, provide the students opportunities to use these systems for various courses, projects, and research. Each of the labs consists of thirty-five high performance computers which provide simultaneous access to both Windows and Linux environments. The special project labs are equipped with additional hardware such as, network routers and firewalls, forensics computers, and a cluster of computers with a VLAN, for research activities.

Incoming freshmen are placed in Mathematics courses based upon their scores from the Scholastic Aptitude Test (SAT) or American College Test (ACT). Presently, the student takes

forty seven (IS option) to fifty (General option) semester hours of Computer Science courses. To make the computer science students well rounded, they are required to take courses in Humanities, Social Science, Natural Science, and Mathematics. The information systems students concentrate more in business courses than in Mathematics. All electives must be approved by the Department.

The curriculum in majors offered in the department is designed develop the following skills.

a. An ability to apply knowledge of computing and mathematics appropriate to the discipline.
b. An ability to analyze, design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
c. An ability to function effectively on teams to accomplish a common goal.
d. An understanding of professional, ethical, and social responsibilities.
e. An ability to communicate effectively.
f. An ability to analyze the impact of computing on individuals, organizations, and society, including ethical, legal, security, and global policy issues.
g. An ability to use current techniques, skills, tools necessary for computing practice, and to engage in continuing professional development

DEPARTMENT OF ACCOUNTING, ECONOMICS, AND FINANCE

The Department of Accounting, Economics, and Finance prepares students to master modern accounting, economics, and finance theory. Upon graduation students are able to apply accounting, economics and financial analysis to contemporary issues. Internship and co-op experiences are offered to enhance students' real world experience. Upon graduation students are ready for graduate studies, or positions in governmental agencies, or businesses as accounting, economic and financial analysts. The curriculum in majors offered in the department is designed develop the following skills.

ACCOUNTING

An ability to demonstrate knowledge of core business skills.
An ability to identify, describe and determine appropriate, relevant and reliable measures for business financial data and analysis of same for decision making.
An ability to effectively communicate the scope of work, finding, or recommendations.
An ability to develop ethical perspectives and sense of moral responsibility of accountants, the accounting profession and financial information.
An ability to analyze and understand the global impact of accounting information.
An ability to demonstrate the skills, knowledge and ability to research, synthesize, make decisions, develop / implement and use feedback to using relevant sources for accounting questions.

ECONOMICS

An ability to demonstrate a fundamental and intermediate knowledge of existing economic theory
An ability to demonstrate basic analytical skills required to address economic concerns
An ability to effectively communicate how to use existing economic concepts and principles to address economic problems
An ability to develop ethical perspectives and sense of moral responsibility and values.
An ability to analyze the different economic or business systems around the world.

FINANCE

An ability to demonstrate a fundamental and intermediate knowledge of existing finance theory
An ability to demonstrate basic analytical skills required to address finance questions
An ability to effectively communicate how to use existing financial concepts and principles to address financial problems
An ability to develop ethical perspectives and sense of moral responsibility and values.
An ability to analyze the different economic or business systems around the world.

BUSINESS

The programs in business consist of majors in Accounting, Business Administration, Economics, Finance, Hospitality Management, Sales and Marketing, and Supply Chain Management. The undergraduate curriculum provides students with a broad educational knowledge base, a core competency in business administration, and knowledge and focused skills that develop specialized knowledge.

The business programs are accredited by the Association to Advance Collegiate Schools of Business-International (AACSB-I), 117 South harbor Island Boulevard, Suite 750, Tampa, Florida 33602-5730, (813) 769-6500.

CURRICULA REQUIREMENTS FOR BUSINESS MAJORS

The Bachelor of Science degree is offered with majors in Accounting, Business Administration, Economics, Finance, Hospitality Management, Sales and Marketing, and Supply Chain Management. The minimum semester credit hours required for graduation are as follows:

General Education Requirements **54-57 Hours**

Humanities **18 hours**

English 101
English 102
Business Ethics (Phil 348)
Five (5) additional credit hours selected from Art, English, Fine Arts, Philosophy, Music or Foreign Language

Other Requirements 4 hours

Orientation 100 and 101 (2 hours)
Physical Education (2 hours)

Social Sciences **21 hours**

History 103	History 104
Economics 201	Economics 202
Economics 300	Economics 301
Psychology 270	

Mathematics, Natural Sciences, Computer Science **17 hours**

Mathematics 107
Mathematics 227
Computer Science 100
Six (6) hours from Physics, Chemistry, Biology, Astronomy, Botany, Animal Science, Physical Science, Food and Nutritional Science

Core Business Requirements **44 HOURS**

HOMT 100	BUSN 342
BUSN 102	BUSN 351
BUSN 211	BUSN 401
BUSN 212	BUSN 406*
BUSN 301	BUSN 426
BUSN 302	BUSN 431
BUSN 311	BUSN 452
BUSN 331	*HOMT 361 for Hospitality Management Majors

Business/Economics Requirements **21-27 HOURS**

Twenty-one to twenty seven (21-27) additional hours of business, economics, and/or hospitality management courses are required that vary by major. See suggested curricula for junior and senior years below.

MINOR IN BUSINESS ADMINISTRATION

A minor in business administration is available to non-business majors who complete 21 hours by earning at least a C grade in the following courses:

BUSN 102
BUSN 211
BUSN 301
BUSN 311
BUSN 351
ECON 201
ECON 202

SUGGESTED CURRICULUM FOR *BUSINESS MAJORS
ALL MAJORS

*Hospitality Management Program curriculum appears separately at the end of this section.

Freshman Year

First Semester	Cr.	Second Semester	Cr.
*English Composition (ENGL 101)	3	*English Composition (ENGL 102)	3
Natural Science Elective	3	Natural Science Elective	3
*College Algebra & Trig. (MATH 107)	4	Principles of Economics (ECON 201)	3
Introduction to Computer (CSCI 100)	3	*Introduction to Calculus (MATH 227)	4
Bus. Management Orientation (BUSN 102)	3	Intro. to Hospitality Management (HOMT 100)	3
Freshman Orientation (OREN 100)	1	Freshman Orientation (OREN 101)	1
Total	17	Total	17

Sophomore Year

First Semester	Cr.	Second Semester	Cr.
English Proficiency Exam (EPE)	0	Humanities Elective II	3
Accounting Principles (BUSN 211)	3	Accounting Principles (BUSN 212)	3
Principles of Economics (ECON 202)	3	History (HIST 104)	3
History (HIST 103)	3	Applied Economics Statistics (ECON 301)	3
Intro. to Statistical Analysis (ECON 300)	3	Management Information Systems (BUSN 351)	3
Humanities Elective I	2	Physical Education	1
Physical Education	1		
Business Ethics (PHIL 348)	3		
Total	18	Total	16

CURRICULUM FOR ACCOUNTING MAJORS

Junior Year

First Semester	Cr.	Second Semester	Cr.
Principles of Finance (BUSN 301)	3	Intermediate Financial Mgmt (BUSN 302)	3
Principles of Marketing (BUSN 311)	3	Investments (BUSN 426)	3
Principles of Management (BUSN 331)	3	Organizational Behavior (BUSN 342)	3
Intermediate Accounting I (BUSN 371)	3	Intermediate Accounting II (BUSN 372)	3
Managerial Economics (ECON 510)	3	Production & Operations Mgmt (BUSN 406)	3
Total	15	Total	15

Senior Year

First Semester	Cr.	Second Semester	Cr.
Business Policy (BUSN 401)	3	Government Accounting (BUSN 374)	3
Business Law (BUSN 452)	3	Auditing (BUSN 475)	3
Advanced Accounting (BUSN 376)	3	Tax Accounting (BUSN 476)	3
System Analysis & Design (BUSN 405)	3	Intro. to Psychology (PSYC 270)	3

Cost Accounting (BUSN 373)	3	Humanities Elective I or II	3
Corporate Survival Skills (BUSN 431)	2		
Total	17	Total	15

CURRICULUM FOR ECONOMICS MAJORS

Junior Year

First Semester	Cr.	Second Semester	Cr.
Principles of Finance (BUSN 301)	3	Intermediate Financial Mgmt (BUSN 302)	3
Principles of Marketing (BUSN 311)	3	Organizational Behavior (BUSN 342)	3
Principles of Management (BUSN 331)	3	Business Law (BUSN 452)	3
Mathematical Economics (ECON 500)	3	Microeconomics (ECON 352)	3
Macroeconomics (ECON 353)	3	Production & Operations Mgmt (BUSN 406)	3
Total	15	Total	15

Senior Year

First Semester	Cr.	Second Semester	Cr.
Business Policy (BUSN 401)	3	Economic Development (ECON 511)	3
Investments (BUSN 426)	3	Intro. to International Trade (ECON 512)	3
Intro. to Psychology (PSYC 270)	3	Financial Institutions (BUSN 422)	3
Econometrics (ECON 400)	3	Humanities Elective I or II	3
Social Science Elective	3		
Corporate Survival Skills (BUSN 431)	2		
Total	17	Total	12

CURRICULUM FOR FINANCE MAJORS

Junior Year

First Semester	Cr.	Second Semester	Cr.
Principles of Finance (BUSN 301)	3	Intermediate Financial Mgmt (BUSN 302)	3
Principles of Marketing (BUSN 311)	3	Organizational Behavior (BUSN 342)	3
Principles of Management (BUSN 331)	3	Business Law (BUSN 452)	3
Intermediate Accounting I (BUSN 371)	3	Intermediate Accounting II (BUSN 372)	3
Macroeconomics (ECON 353)	3	Microeconomics (ECON 352)	3
Total	15	Total	15

Senior Year

First Semester	Cr.	Second Semester	Cr.
Business Policy (BUSN 401)	3	Financial Institutions (BUSN 422)	3
Investments (BUSN 426)	3	Insurance (BUSN 451)	3
Principles of Real Estate (BUSN 461)	3	Introduction to International Trade (ECON 512)	3
Production & Operations Mgmt (BUSN 406)	3	Intro. to Psychology (PSYC 270)	3

Corporate Survival Skills (BUSN 431)	2		
Total	14	Total	12

CURRICULUM FOR BUSINESS ADMINISTRATION

Junior Year

First Semester	Cr.	Second Semester	Cr.
Principles of Finance (BUSN 301)	3	Intermediate Financial Mgmt (BUSN 302)	3
Principles of Marketing (BUSN 311)	3	Business Law (BUSN 452)	3
Principles of Management (BUSN 331)	3	Marketing/Sales Management (BUSN 312)	3
Managerial Accounting (BUSN 314)	3	Organizational Behavior (BUSN 342)	3
Managerial Economics (ECON 510)	3	Production & Operations Mgmt (BUSN 406)	3
Total	15	Total	15

Senior Year

First Semester	Cr.	Second Semester	Cr.
Business Policy (BUSN 401)	3	International Business & Policy (BUSN 402)	3
Human Resource Management (BUSN 416)	3	Insurance (BUSN 451)	3
Investments (BUSN 426)	3	Social Science Elective	3
		_____	
Intro. to Psychology (PSYC 270)	3	Humanities Elective I or II	3
		_____	
Principles of Real Estate (BUSN 461)	3		
Total	15	Total	12

CURRICULUM FOR SALES AND MARKETING

Junior Year

First Semester	Cr.	Second Semester	Cr.
Principles of Finance (BUSN 301)	3	Intermediate Financial Mgmt (BUSN 302)	3
Principles of Marketing (BUSN 311)	3	Business Communication (BUSN 400)	3
Principles of Management (BUSN 331)	3	Marketing/Sales Mgmt (BUSN 312)	3
Intro. to Psychology (PSYC 270)	3	Organizational Behavior (BUSN 342)	3
Managerial Economics (ECON 510)	3	Prod. & Operations Mgmt. (BUSN 406)	3
Total	15	Total	15

Senior Year

First Semester	Cr.	Second Semester	Cr.
Business Policy (BUSN 401)	3	Multinational Marketing (BUSN 412)	3
Sales Forecast & Mkt. Analysis (BUSN 408)	3	Promotional Strategy (BUSN 414)	3
Professional Selling (BUSN 445)	3	Humanities Elective I or II	3

Business Law (BUSN 452)	3	Investments (BUSN 426)	3
Social Science Elective	3		
Total	15	Total	12

CURRICULUM FOR SUPPLY CHAIN MANAGEMENT

Junior Year

First Semester	Cr.	Second Semester	Cr.
Principles of Finance (BUSN 301)	3	Intermediate Financial Mgmt (BUSN 302)	3
Principles of Marketing (BUSN 311)	3	E-Business (BUSN 355/CSCI 355)	3
Principles of Management (BUSN 331)	3	Marketing/Sales Management (BUSN 312)	3
Intro to Supply Chain Mgt (BUSN 310)	3	Organizational Behavior (BUSN 342)	3
Data Base Management (CSCI 345)	3	Prod. & Operations Mgmt (BUSN 406)	3
Total	15	Total	15

Senior Year

First Semester	Cr.	Second Semester	Cr.
Business Policy (BUSN 401)	3	E-Business System Development (CSCI 365)	3
Quality Management (BUSN 410)	3	Supply Chain Strategy (BUSN 430)	3
Logistics (BUSN 420)	3	Business Law (BUSN 452)	3
Professional Selling (BUSN 445)	3	Humanities Elective I or II	3
Intro. to Psychology (PSYC 270)	3	Social Science Elective	3
Total	15	Total	15

CURRICULUM FOR HOSPITALITY MANAGEMENT

Freshman Year

First Semester	Cr.	Second Semester	Cr.
English Composition (ENGL 101)	3	English Composition (ENGL 102)	3
Intro. to Hosp. Mgmt. (HOMT 100)	3	Natural Science Elective	3
College Algebra & Trig (MATH 107)	4	Principles of Economics (ECON 201)	3
Intro. to Computer (CSCI 100)	3	Intro. to Calculus (MATH 227)	4
Bus. Management Orien. (BUSN 102)	3	History (HIST 103)	3
Freshman Orientation (OREN 100)	1	Freshman Orientation (OREN 101)	1
Total	17	Total	17

Sophomore Year

First Semester	Cr.	Second Semester	Cr.
English Proficiency Exam (EPE)	0	Humanities Elective II	3
Accounting Principles (BUSN 211)	3	Accounting Principles (BUSN 212)	3

Principles of Economics (ECON 202)	3	Natural Science Elective	3
History (HIST 104)	3	Applied Econ. Statistics (ECON 301)	3
Intro. to Statistics Analysis (ECON 300)	2	Hotel Operations (HOMT 265)	3
Humanities Elective I	3	Physical Education	1
_____	1	_____	2
Physical Education	3	Corporate Survival Skills (BUSN 431)	
_____			
Business Ethics (PHIL 348)			
Total	18	Total	18

Junior Year

First Semester	Cr.	Second Semester	Cr.
Principles Of Finance (BUSN 301)	3	Intermediate Financial Mgmt (BUSN 302)	3
Principles of Marketing (BUSN 311)	3	Services Marketing (HOMT 312)	3
Hospitality Mgt Cost Ctr (HOMT 367)	3	Restaurant Operations Mgt (HOMT 301)	3
Mgt of Basic Food Production (HOMT 314)	3	Hospitality Managerial Acctg (HOMT 313)	3
Applied Hospitality Systems (HOMT 361)	3	Management Ingo. Systems (BUSN 351)	3
Total	15	Total	15

Senior Year

First Semester	Cr.	Second Semester	Cr.
Facility Planning & Design (HOTM 462)	3	Hospitality Law & Liability (HOMT 453)	3
Investments (BUSN 426)	3	Business Policy (BUSN 401)	3
Business Law (BUSN 452)	3	Meeting and Conv Planning (HOMT 463)	3
Principles of Management (BUSN 331)	3	Organizational Behavior (BUSN 342)	3
Total	12	Total	12

COURSES PRIMARILY FOR UNDERGRADUATE STUDENTS IN BUSINESS

BUSN 0102. BUSINESS MANAGEMENT ORIENTATION. 1st and 2nd Semester and Summer. Lect. 3, 3 credits. This course focuses on descriptive information necessary to understand the practice of management and organization.

BUSN 0211. 0212. ELEMENTARY ACCOUNTING PRINCIPLES. 1st and 2nd Semester and Summer. Lect. 3, 3 credits respectively. A study of the fundamental principles of accounting as they apply to modern business practice. Attention is given to the accounting cycle, and the preparation and analysis of financial statements. Emphasis is on basic concept of accounting data in the decision-making process. Prerequisite: BUSN 0211 must be taken before BUSN 0212.

BUSN 0301. PRINCIPLES OF FINANCE. 1st Semester. Lect. 3, 3 credits. This is an introductory course in corporate finance which aims to familiarize the students with the key concepts in the financial management including time value of money, risk and return, financial statement analysis, and asset valuation models. The central theme of the course is how to maximize the value of the firm. Prerequisite: BUSN 0211, ECON 0202.

BUSN 0302. INTERMEDIATE FINANCIAL MANAGEMENT. 2nd Semester. Lect. 3, 3 credits. This is the second course in corporate finance. The main topics to be covered in this course include working capital management, capital budgeting, capital structure and leverage, dividend policy, and mergers and acquisitions. Mini-cases and spreadsheets are used to help students to learn the financial decision-making process. Prerequisite: BUSN 0301; Junior standing.

BUSN 0310. INTRODUCTION TO SUPPLY CHAIN MANAGEMENT. 1st Semester. Lect. 3, 3 credits. This course examines concepts, practices and applications of SCM. Students learn about procurement methods and the importance of developing buyer-supplier relationships within a strategic environment.

BUSN 0311. MARKETING. 1st Semester. Lect. 3, 3 credits. A comprehensive survey of the marketing system primarily focused with the matching of markets and products and effective ownership transfer. Students will be exposed to those business activities involved in moving goods and services from manufacturing and other producers to final consumers and users. Prerequisite: ECON 0201, 0202.

BUSN 0312. MARKETING/SALES MANAGEMENT. 2nd Semester. Lect. 3, 3 credits. This course examines the elements of an effective sales force as a key component of the organization's total marketing effort. Prerequisite: BUSN 0311.

BUSN 0314. MANAGERIAL ACCOUNTING. 1st and 2nd Semester. Lect. 3, 3 credits. Emphasis is placed on the use of accounting as an aid in the formulation and administration of management policies, controls, and procedures. The course focuses on the analysis and interpretation of financial statements and points out the importance of accounting in the decision-making process. Prerequisite: BUSN 0211-0212.

BUSN 0316. CONSUMER BEHAVIOR. 2nd Semester. Lect. 3, 3 credits. The focus of this course is the effect of cultural, social and psychological factors upon the buying habits of consumers. Prerequisite: Junior standing.

BUSN 0331. PRINCIPLES OF MANAGEMENT. 1st Semester. Lect. 3, 3 credits. This course examines the functions of management which comprise management theory. The concepts of authority, responsibility and organizational objectives are emphasized. Both profit-seeking and non-business enterprises are discussed.

BUSN 0342. ORGANIZATIONAL BEHAVIOR. 2nd Semester. Lect. 3, 3 credits. This course focuses on the systems approach to human and organizational behavior. Students gain an awareness of contemporary issues and approaches to organizational change and development. Prerequisite: BUSN 0331.

BUSN 0351. MANAGEMENT INFORMATION SYSTEMS. 2nd Semester and Summer. Lect. 3, 3 credits. This course focuses on the use of data information systems to facilitate the decision making process. Prerequisites: MATH 0107.

BUSN 355/CSCI 355. 2nd Semester. Lect. 3, 3 credits. This course examines the role or electronic business concepts and designs. Students receive instruction regarding developing, implementing, and maintaining business systems used to support e-business strategies of an organization.

BUSN 0369. MONEY AND CAPITAL MARKETS. 2nd Semester. Lect. 3, 3 credits. A general study of the financial process and the nature of financial markets. Students will be exposed to aggregate investment and savings behavior; money capital markets, and the flow of funds. Attention will be give to the role of financial intermediaries and the internal aspects of financial markets. Prerequisite: Junior standing.

BUSN 0371. INTERMEDIATE ACCOUNTING I. 1st Semester. Lect. 3, 3 credits. The course includes the study of the principal accounting statements; a review of the fundamental processes of accounting; a consideration of problems involved in the measurement of business position and periodic process. Prerequisite: BUSN 0212.

BUSN 0372. INTERMEDIATE ACCOUNTING II. 2nd Semester. Lect. 3, 3 credits. A continuation of Intermediate Accounting I. Prerequisite: BUSN 371.

BUSN 0373. COST ACCOUNTING. 2nd Semester. Lect. 3. A one semester course dealing with the principles, procedures and executive uses of manufacturing and marketing cost accounting. It treats cost accounting fundamentals, planning and controlling routine operations; and cost analysis for nonroutine decisions and long-range planning. The student is introduced to the principles of capital budgeting and relevant costs. Prerequisite: BUSN 212.

BUSN 0374. GOVERNMENT ACCOUNTING. 2nd Semester. Lect. 3, 3 credits. An intensive and practical study of the theory, terminology, mechanics and principles of accounting applicable to governmental units and subdivisions thereof; hospitals, institutions of higher learning, and philanthropic foundations. The scope of the course also includes budgeting, reporting and auditing. Prerequisites: BUSN 0211, 0212.

BUSN 0376. ADVANCED ACCOUNTING. 1st Semester. Lect. 3, 3 credits. Special units are included on accounting theory and external reporting, partnerships, special sales procedures, consolidation, and fiduciaries. Prerequisites: BUSN 0371, 0372.

BUSN 0400. BUSINESS COMMUNICATIONS. 1st and 2nd Semester. Lect. 3, 3 credits. This course focuses on the practice of using correct, forceful English in business communications (both oral and written); consideration of style, structure and aims of business letters and reports; principles and types of communication leading to better practices in managerial operations.

BUSN 0401. BUSINESS POLICY. 1st Semester. Lect. 3, 3 credits. This capstone course is designed to assist the student in developing a working knowledge and a global view of the theories studied in various fields of business. Prerequisite: Senior standing.
BUSN 0402. INTERNATIONAL BUSINESS AND POLICY. 2nd Semester. Lect. 3, 3 credits. The course is designed to expose students to essential elements of multi-national business operations and the social and economic systems as they affect the conduct of global business. Theories and concepts in international product cycle, major financial institutions such as the World Bank, the International Monetary Fund (IMF) and other agencies which stabilize and facilitate global business transactions are studied. Prerequisite: Senior standing.

BUSN 0403/0404. INDEPENDENT STUDY. 1st and 2nd Semester. 1-3 credits. Upperclassmen (Juniors and Seniors) have need to participate in certain specialized and independent areas of study determined by their individual strengths and weaknesses, projected areas of growth and plans for further studies. This course will be somewhat tutorial in format. The enrolled student will be assigned to a faculty member to work out certain specific assignments. The student will have the primary responsibility of completing these assignments under the guidance of the assigned instructor. By permission of the Dean only.

BUSN 0405. SYSTEMS ANALYSIS AND DESIGN. 1st Semester. Lect. 3, 3 credits. This course focuses on analysis and design of systems. Prerequisite: BUSN 351; CSCI 100

BUSN 0406. PRODUCTION AND OPERATION MANAGEMENT. 1st and 2nd Semester. Lect. 3, 3 credits. This course explores the purpose of operations as it impacts decision-making and manufacturing and service practices. This course emphasizes the long-term, strategic impact of managing operations as well as how operations decisions impact and intersect with the other business disciplines and functions. Prerequisite: MATH 107 and Junior standing.

BUSN 0408. SALES FORECASTING & MARKETING ANALYSIS. 1st Semester. Lect. 3, 3 credits. Introduction to research techniques and procedures associated with various market systems. Prerequisites: BUSN 311, ECON 301.

BUSN 0409. CORPORATE FINANCIAL POLICY. 2nd Semester. Lect. 3, 3 credits. Designed to give the student experience in solving problems related to finance. This is an integrative course and the case study approach is used. Prerequisite: BUSN 0302.

BUSN 410. QUALITY MANAGEMENT. 1st Semester. Lect 3, 3 credits. This course focuses on the tools and methodologies used to ensure quality in the product/service transformation process. Emphasis is placed on transformation processes supporting lean manufacturing. Prerequisite: BUSN 310.

BUSN 0412. INTERNATIONAL MARKETING. 2nd Semester. Lect. 3, 3 credits. A study of several international market systems is done in this course; the practice of marketing administration by businesses operating within these marketing systems. Prerequisite: BUSN 312.

BUSN 0414. PROMOTIONAL STRATEGY. 1st Semester. Lect. 3, 3 credits. This course focuses on planning, developing and executing an integrated marketing communication plan through

demonstrated understanding of principles and concepts used to acquaint consumers with products and services offered in the marketplace. Prerequisite BUSN 312.

BUSN 0416. HUMAN RESOURCE MANAGEMENT. 1st and 2nd Semester. Lect. 3, 3 credits. This course offers a survey of the theories, principles, policies, and procedures of management as applied to planning, organizing, recruiting, selecting, developing and maintaining a labor force in an organization.

BUSN 0418. INTRODUCTION TO QUANTITATIVE METHODS IN BUSINESS. 1st Semester. Lect. 3, 3 credits. The role of mathematics and statistics in the scientific approach to decision-making will be discussed. The course will deal with scientific decision making tools such as linear programming, decision analysis, game theory, and transportation method. Prerequisites: MATH 0107, 0227.

BUSN 0420. LOGISTICS. 1st Semester. Lect. 3, 3 credits. This course focuses on the contemporary issues in transport service, customer service distribution operations, warehousing, packaging, carrier selection, transport costing and negotiations.

BUSN 0421. FINANCIAL MANAGEMENT - CASES AND PROBLEMS. Lect. 3, 3 credits. Analysis of case problems in the area of corporate finance, investments and bank management utilizing the tools and techniques developed in prior banking and finance courses. Focus on current and academic research. Prerequisite: Junior standing or permission of instructor.

BUSN 0422. FINANCIAL INSTITUTIONS. 1st Semester. Lect. 3, 3 credits. Topics to be covered are the functions of financial institutions, how banks serve business people, different kinds of banks and lending institutions concentrating on commercial banks. Prerequisite: Junior standing or permission of instructor.

BUSN 0424. COMMERCIAL BANK MANAGEMENT & CREDIT ANALYSIS. 1st Semester. Lect. 3, 3 credits. Allocation of human and physical resources in commercial bank operations, organization of a bank in terms of management information systems, cost identified in the context of legal, environmental, technological and industrial factors. Banks as lenders; policies; types of bank loans; financial statement analysis including the concepts of cash flow, liquidity and leverage; loan administration.

BUSN 0426. INVESTMENTS. 1st Semester. Lect. 3, 3 credits. Designed to familiarize the student with the various investment techniques to include an analysis of the factors involved in the development of an investment portfolio. Prerequisite: BUSN 0302.

BUSN 0430. SUPPLY CHAIN STRATEGY. 2nd Semester. Lect.3, 3 credits. This course examines the principles, theories and techniques in supply management operations and logistics for effective SCM in the global environment.

BUSN 0431. CORPORATE SURVIVAL SKILLS. 2nd Semester. Lect. 2, 2 credits. This course offers a study of professional development strategies to assist students in making the transition from college to the real world of business.

BUSN 0445. PROFESSIONAL SELLING. 2nd semester. Lect. 3, 3 credits. This course focuses on building long-term partnerships with customers, with an emphasis on business-to-business sales. Sales communication methods including effective listening, critical questioning, sales presentations, communicating value, responding to concerns and creating action will be examined and practiced. Students will develop and deliver a sales plan and an effective sales presentation. Prerequisite: BUSN 312.

BUSN 0451. INSURANCE. 2nd Semester. Lect. 3, 3 credits. This course focuses on principles of insurable risks. It treats the basic ideas, problems and principles found in all types of modern day insurance and other methods of handling risks.

BUSN 0452. BUSINESS LAW I. 2nd Semester. Lect. 3, 3 credits. A treatment of the legal framework of business principles and rules as well as the logic of the law are studied through an analysis of case briefs. Attention is given to the law of contracts; agency, torts, interstate commerce, and other business related laws.

BUSN 0453. BUSINESS LAW II. 2nd Semester. Lect. 3, 3 credits. A continuation of the study of the fundamental principles of law and legal instruments most frequently involved in business transactions.

BUSN 0461. PRINCIPLES OF REAL ESTATE. 1st Semester. Lect. 3, 3 credits. A comprehensive survey of the principles and practice of real estate. Attention is given to the economic and social impact of real estate, markets, property rights, instruments of conveyance of title and real estate management. Prerequisite: Junior Standing.

BUSN 0475. AUDITING. 2nd Semester. Lect. 3, 3 credits. Presents a study of the principles of internal and independent auditing. Emphasis will be placed upon the auditing standards and procedures associated with the public accounting profession. Attention will be given to audit reports, professional ethics, legal responsibilities, audit programs and audit working papers. Prerequisites: BUSN 0371, 0372 and 0376.

BUSN 0476. TAX ACCOUNTING. 1st Semester. Lect. 3, 3 credits. The course is designed to give the student a broad appreciation of the tax structure. Special consideration will be given to the characteristics of the federal income tax as applied to individuals and corporations. Prerequisites: BUSN 0211, 0212. Senior standing or permission of instructor.

COURSES PRIMARILY FOR UNDERGRADUATE STUDENTS IN ECONOMICS

ECON 0201, 0202. PRINCIPLES OF ECONOMICS. 1st and 2nd Semester and Summer. Lect. 3, 3 credits each course. The first part of this course sequence deals with the aggregate volume of the output of the American Economy, with the extent to which its resources are employed, with size of the national income, and with the "general price level." The second part deals with division of total output among competing uses. It considers problems of income distribution. Its interest is in relative prices of particular goods and services.

ECON 0203, 0204. UNEMPLOYMENT, POVERTY AND INCOME INEQUALITY. 1st and 2nd Semester. Lect. 3, 3 credits each semester. The course provides a study of the economic causes of unemployment, poverty, income inequality, and the proper economic policies which deal with them. It contains their definitions, classification, the case of minority groups, unequal opportunities; the economic and social costs of unemployment and the impact of poverty and income inequality; the measurement, determinants, combating of inequality; and the goals of equality, alleviating poverty, and full employment without accelerating inflation. Required for Social Work Majors.

ECON 0300. INTRODUCTION TO STATISTICAL ANALYSIS. 1st Semester. Lect. 3, 3 credits. This course deals with the collection, presentation, and interpretation of data. It is concerned with the measures of location, measures of dispersion, probability and probability distributions. Prerequisite: MATH 0107.

ECON 0301. APPLIED ECONOMIC STATISTICS. 2nd Semester. Lect. 3, 3 credits. This course deals with sampling, confidence interval estimation, tests of significance involving both parametric and non-parametric methods, analysis of relationship consisting of regression and correlation, secular trend, seasonal variation, cyclical fluctuation and index numbers. Prerequisite: ECON 0300.

ECON 0302. LABOR ECONOMICS. 1st Semester. Lect. 3, 3 credits. The theory of the labor market; the theory of wages and employment; unemployment, deployment, labor organization, wages and changes in the U. S. Labor market conditions and their implications for the degree of labor force utilization that is consistent with reasonable price stability. The course includes a study of the "Phillips" curve relation. Prerequisites: ECON 0201 and 0202.

ECON 0305. MONEY AND BANKING. 1st Sem. Lect. 3, 3 credits. Designed to help the student understand functions of money and credit in a modern economy and the commercial bank operations and creation of credit. Principles and practices of central banking and credit control. Role of money in relation to employment, prices, and business cycles. International monetary relations. Prerequisite: ECON 0201.

ECON 0306. MONETARY THEORY AND FISCAL POLICY. 2nd Semester. Lect. 3, 3 credits. Application of monetary theory to current issues, unemployment and monetary policy, fiscal policy examined, along with monetary policy-income policies including money and National Income Determination. Prerequisite: ECON 0305.

ECON 0350. HISTORY OF ECONOMIC THOUGHT. 2nd Semester. Lect. 3, 3 credits. This course involves the study of the development of economic ideas, doctrine and methods from the period of the classical theorists to modern times with emphasis on contemporary implications. Prerequisites: ECON 0201 and 0202.

ECON 0352. MICROECONOMICS. 1st Semester. Lect. 3, 3 credits. This course analyzes the behavior of business firms, industries, consumers and resource owners. It investigates how the market system determines the composition of national product, the amount of the productive factors used by firms and industries, and the distribution of income. It evaluates the extent to

which various market structures (e. g. pure competition, oligopoly, etc.) function in the interest of social welfare. Prerequisites: ECON 0201, 0202 and MATH 0106 and 0107.

ECON 0353. MACROECONOMICS. 2nd Semester. Lect. 3, 3 credits. An introduction to recent theory with particular emphasis on the determination of aggregate income, employment, output and price levels. The Keynesian and classical systems are contrasted, along with recent literature on the subject. Prerequisites: ECON 0201, 0202, and MATH 0227.

ECON 0400. ECONOMETRICS. 1st Semester. Lect. 3, 3 credits. Approaches to inference in econometrics, including estimation, testing, prediction procedures; least squares, maximum likelihood, and analyses of the standard linear model, discussions of assumptions of this model, and residual analysis; elements of correlation theory, multivariate regression, and simultaneous equation analysis; specification analysis; applications of methods and models in analyses of economic data and problems.

ECON 0401. SEMINAR IN ECONOMICS. 1st and 2nd Semester. Lect. 3, 3 credits. Presentation and discussion of economic problems; emphasis placed on current and domestic economic conditions. The application of statistical analysis in real world problems is explored.

ECON 0412. COMPARATIVE ECONOMIC SYSTEMS. 1st Semester. Lect. 3, 3 credits. This course focuses on the economics of capitalism, socialism, communism and fascism. Prerequisite: ECON 0201, 0202.

ECON 0416. INDUSTRIAL ECONOMICS. 2nd Semester. Lect. 3, 3 credits. This course reviews the organization of American industries under various states of the market, market structure analysis, barriers to entry, and workable competition. Also included are an evaluation of government policy with respect to concentration, mergers, and oligopoly conduct along with foreign approaches to monopoly problems and an appraisal of current structural trends and policy alternatives. Prerequisites: ECON 0201, 0202.

ECON 0500. MATHEMATICAL ECONOMICS. 2nd Semester. Lect. 3, 3 credits. An introduction to mathematical methods in Economics. Prerequisites: ECON 0352, 0353; MATH 0227.

ECON 0508. CONSUMER ECONOMICS. 2nd Semester. Lect. 3, 3 credits. Planning financial programs; sources and terms of credit; savings and investments; types of insurance; acquisition and disposition of property.

ECON 0510. MANAGERIAL ECONOMICS. 1st Semester. Lect. 3, 3 credits. Analysis of application of economic theory to management decision-making process. Such problems as demand and cost determination, pricing and capital budgeting, risks, and uncertainty are treated. Introduction to operations research and linear programming. Prerequisites: ECON 0202, 0352 and MATH 0107 and 0108.

ECON 0511. ECONOMIC DEVELOPMENT. 1st Semester. Lect. 3, 3 credits. Economic progress in the past, factors affecting economic development, capital accumulation; domestic and

foreign investment are explored. This course includes a focus on the doctrine of balanced growth, over-population, and Foreign Aid. Prerequisites: ECON 0352, 0353 and 0512.

ECON 0512. INTRODUCTION TO INTERNATIONAL TRADE. 2nd Semester. Lect. 3, 3 credits. This course explores concepts, analytical tools and their applications to international economics. Introduction to theory and empirical foundations of international trade and factor movements. The theory of multi-country, multi-commodity trade. Problem of international disequilibrium. Public and private barriers to trade and monopoly of international trade. Search for economic stability and growth through international cooperation. International monetary funds. International monetary system. Role of international trade and aid in economic development. Prerequisites: ECON 0201, 0202, 0352 and 0353.

ECON 0513. ADVANCED TOPICS IN INTERNATIONAL TRADE. 1st Semester. Lect. 3, 3 credits. This course focuses on advanced topics in international economics. Current problems of exchange rate adjustment; balance of payment adjustment; problems of free trade and protectionism, terms of trade, developments and problems in export/import index constructions. Prerequisite: ECON 0512.

ECON 0514. REGIONAL ECONOMICS. 1st Semester. Lect. 3, 3 credits. This is a course in the economic structure, stability and growth of regions. It probes into the intricacies of industrial location techniques, regional growth and development, theory and policy, abstract models of spatial equilibrium and change, urbanization patterns, and problems of urban form, growth and conflict. Specific topics include: Industrial location patterns, land use, measurement of regional economic activity, and impact analysis. Prerequisites: ECON 0201, 0202, 0352 and ECON 0353.

ECON 0515. PUBLIC FINANCE. 1st Semester. Lect. 3, 3 credits. The course contains a study of the theory of public finance and the following related topics: the economics of modern taxation, public expenditures, government budget, and public debt and its management, tax effects, shifting, burden, and incidence, alternative types of taxes, welfare aspects of public service, externalities, pricing of divisible services, collectives and public service, externalities, pricing of divisible services, collectivities and public decision making, optimal outputs of government services, cost benefit analysis, and fiscal policies. Prerequisites: ECON 0201, 0202 ECON 0352, 0353.

COURSES PRIMARILY FOR UNDERGRADUATE STUDENTS IN HOSPITALITY MANAGEMENT

HOMT 0100. INTRODUCTION TO HOSPITALITY MANAGEMENT. 1st and 2nd Semesters. Lect. 3, 3 credits. This course offers an overview of the hospitality industry, including travel/tourism, lodging, meeting planning, food and beverage management, and recreation/gaming, Elements of team-building and the quality service paradigm are emphasized.

HOMT 0265. HOTEL OPERATIONS. 2nd Semester. Lect. 3, 3 credits. This course provides an overview and understanding of the major components of successful hotel operations focusing on the front office, housekeeping, sales and marketing, and accounting aspects of the lodging

industry through a series of experiential learning activities at the Kellogg Hotel and Conference Center and other industry partners.

HOMT 0301. RESTAURANT OPERATIONS MANAGEMENT. 2nd Semester. Lect. 2 Lab 1, 3 credits. This course provides students with a systematic approach to restaurant operations management. Students apply functions of management to operations and delivery of excellent dining service through integrated teamwork and participation.

HOMT 0312. SERVICES MARKETING. 2nd Semester. Lect. 3, 3 credits. This course provides a practical study in selling and promoting the service industry. Specific strategies for marketing intangible products and improving quality of service delivery; characteristics of services and evaluation of service success are studied.

HOMT 0313. HOSPITALITY MANAGERIAL ACCOUNTING. 2nd Semester. Lect. 3, 3 credits. This course focuses on analysis and interpretation of hospitality financial statements and revenue management techniques to hotel operations.

HOMT 0314. MANAGEMENT OF BASIC FOOD PRODUCTION. 1st Semester. Lect. 1, Lab 2, 3 credits. This course provides students with the basic skills in food preparation and production, including theory of food production, terminology, functions and ingredients, methods or cooking, purchasing, use of equipment, recipe and measurement analysis, safe food handling, and sanitation.

HOMT 0361. HOSPITALITY SYSTEMS MANAGEMENT. 1st Semester. Lect 3, 3 credits. This course provides students with various field experiences which promote a systems approach to understanding hospitality organizations and their interdependent relationships in the industry. Emphasis is placed on management's ability to optimize system performance.

HOMT 0364. HOSPITALITY SYSTEMS MANAGEMENT LAB. 1st Semester, Lab 1, 1 credit. The course is an application of theoretical knowledge of principles of management to the Hospitality System course.

HOMT 0367. HOSPITALITY MANAGEMENT COST CONTROL. 1st Semester. Lect 3, 3 credits. This course provides students with effective methods for monitoring and controlling costs associated with the operation of lodging, food and beverage, and other hospitality businesses. The course includes analysis of cost/volume/profit relationships and their impact on product and service quality issues.

HOMT 0453. HOSPITALITY LAW AND LIABILITY. 2nd Semester. Lect 3, 3 credits. This course focuses on an understanding of the legal framework of hospitality business principles and rules, as well as a general understanding of the legal and ethical issues of the hospitality industry.

HOMT 0463. MEETING AND CONVENTION PLANNING. 2nd Semester. Lect. 3, 3 credits. This course provides students with a better understanding of the process, principles, and logistical strategies connected with meetings and convention planning.

COMPUTER SCIENCE (CSCI)

The department offers a curriculum which leads to the degree of Bachelor of Science in Computer Science with two concentrations: **General Computer Science, and Information Systems**. The objective of this curriculum is to prepare students solidly in both hardware and software areas of Computer Science. This prepares students to work for industry, government, and for Graduate Studies. The curriculum is frequently updated to keep pace with the fast changing trends in Information technology for the global market.

The course offerings are supported by state of the art facilities. Currently, several computer labs including a multimedia lab, high performance computing lab, software engineering lab, information security lab, and special project lab, provide students with opportunities to use these systems for various courses, projects, and research. Each of the labs consists of thirty-five high performance computers which provide simultaneous access to both Windows and Linux environments. The special projects lab and High Performance Computing Lab are equipped with additional hardware such as, network routers and firewalls, forensics computers, and a cluster of computers with a VLAN, are used for research activities.

Incoming freshmen are placed in Computer Science and Mathematics courses based upon their scores from the Scholastic Aptitude Test (SAT) or American College Test (ACT). Presently, students take forty seven (IS option) to fifty (General option) semester hours of Computer Science courses. To make computer science students well rounded, they are required to take courses in Humanities, Social Science, Natural Science, and Mathematics. The information systems students concentrate more in business courses than in Mathematics. All electives must be approved by the Department.

CURRICULUM FOR COMPUTER SCIENCE MAJOR
(General Option)
Freshman Year

1st Semester	**Cr.**	**2nd Semester**	**Cr.**
CSCI 0150 Intro to Comp Science	3	CSCI 0210Programming I	3
MATH 0107 Coll. Algebra and Trig. *	4	MATH 0108 Coll. Alg. & Trig.*	4
ENGL 0101English Comp I	3	ENGL 0102 English Comp II	3
HIST 0103World Civilization I	3	HIST 0104 World Civilization II	3
HUMN I Humanities Elective	2	HUMN Humanities Elective	3
PHED Physical Educ. Elect.	1	OREN 0101 Freshman	1
OREN0100 Freshman Orientation	1		
Total	17	Total	17

Sophomore Year

1st Semester	Cr.	2nd Semester	Cr.
CSCI 0220 Programming II	3	CSCI 0230 Data Structures	3
CSCI 0225 Comp Org &Assembly Lang	3	MATH 0208 Calculus II	4
MATH 0207 Calculus I	4	ECON 0201 Prin. of Economics	3
PHED Physical Educ. Elect.	1	HUMN I Humanities Elective	3
Natural Science Elective	4	Natural Science Elective	4
		English Proficiency Exam	
Total	15	Total	17

Junior Year

1st Semester	Cr.	2nd Semester	Cr.
CSCI 0235 Comp. Design & Arch.	3	CSCI 0340 Data Base Mgmt.	3
CSCI Computer Science Elec.	3	MATH 0507 Prob. & Statistics	3
MATH 0209 Multivariable Calculus	4	CSCI Computer Science Elec.	3
CSCI 0300 Discrete Math Structures	3	ENGL 0203/0204 Tech. Writing	3
CSCI 0370 Computer Networks	3	Natural Science Elective	4
Total	16	Total	16

Senior Year

1st Semester	Cr.	2nd Semester	Cr.
CSCI 0430 Software Engineering	3	CSCI 0435 Operating Systems	3
CSCI 0451 Computer Sci. Seminar	1	CSCI 0445 Theory of Comp.	3
CSCI 0481 Ethical & Social Issues in Comp	3	CSCI 0452 Computer Sci. Sem.	1
CSCI Computer Science Elec.	3	CSCI Computer Science Elec.	3
Social Science Elective	3	Humanities Elective	2

Social Science Elective	3	Social Science Elective	3
	Total 16		Total 15

* Students may be exempted (but credit hours must be replaced) based on Mathematics placement policy and/or SAT/ACT (math) scores.

Note: A minimum grade of "C" is required in ENGL 0101, 0102, ECON 0201, Computer Science and Mathematics courses. Course work in natural science must include the equivalent of a two-semester sequence (with lab) for science majors.

CURRICULUM FOR COMPUTER SCIENCE MAJOR
(Information Systems Option)
Freshman Year

1st Semester	**Cr.**	**2nd Semester**	**Cr.**
CSCI 0150 Intro to Comp Science	3	CSCI 0210 Programming I	3
MATH 0107Coll. Algebra and Trig.*	4	MATH 0108Coll. Alg. & Trig.*	4
ENGL 0101 English Comp I	3	ENGL 0102 English Comp II	3
HIST 0103 World Civilization I	3	HIST 0104 World Civilization II	3
HUMN I Humanities Elective	2	HUMN Humanities Elective	3
PHED Physical Educ. Elect.	1	OREN 0101Freshman Orien.	1
OREN 0100 Freshman Orientation	1		
	Total 17		Total 17

Sophomore Year

1st Semester	**Cr.**	**2nd Semester**	**Cr.**
CSCI 0220 Programming II	3	CSCI 0230 Data Structures	3
CSCI 0225 Comp Org &Assembly Lang	3	CSCI 0212 Visual Basic	3
MATH 0227 Business Calculus	4	ECON 0201 Principles of Econ.	3
PHED Physical Educ. Elect.	1	HUMN II Humanities Elective	3
Natural Science Elective	4	Natural Science Elective	4
Humanities Elective	2	**English Proficiency Exam**	

	Total	17	Total 16

Junior Year

1st Semester	Cr.	**2nd Semester**	Cr.
CSCI 0300 Discrete Math Structures	3	CSCI 0340 Data Base Mgmt.	3
Social Science Elective	3	ECON 0300 Intro Stat. Analysis	3
CSCI 0370 Computer Networks	3	BUSN 0212 Elem. Acct. Prin. II	3
BUSN 0211 Elem. Acct. Prin. I	3	CSCI Computer Science Elec.	3
Natural Science Elective	4	ENGL 0203/0204 Tech. Writing	3
	Total 16		Total 15

Senior Year

1st Semester	**Cr.**	**2nd Semester**	**Cr.**
CSCI 0415 Management Info. Sys.	3	CSCI 0405 Sys. Anal. & Design	3
CSCI 0451 Computer Sci. Seminar	1	CSCI 0452 Computer Sci. Sem.	1
BUSN 0331 Prin. of Management	3	CSCI Computer Science Elec.	3
BUSN 0406 Prod. & Oper. Mgt.	3	CSCI Computer Science Elec.	3
CSCI Computer Science Elec.	3	Social Science Elective	3
CSCI 0481 Eth. and Soc. Issues in Comp	3	Social Science Elective	3
	Total 16		Total 16

* Students may be exempted (but credit hours must be replaced) based on Mathematics placement policy and/or SAT/ACT (math) scores.

Note: A minimum grade of "C" is required in ENGL 0101, 0102, ECON 0201, Business, Computer Science and Mathematics courses. Course work in natural science must include the equivalent of a two-semester sequence (with lab) for science majors.

COMPUTER SCIENCE MAJORS
Summary of Requirements –General Option

University Requirements (4 credit hours)
Orientation – OREN 0100 (1 credit hour) and OREN 0101 (1 credit hour)
Physical Education – 2 PHED courses for 2 credit hours.
English Proficiency Exam – Take during sophomore year after ENGL102

Humanities Requirements (19 credit hours)
Specified courses: ENGL 0101 (3 credit hours), ENGL 0102 (3 credit hours), ENGL 0203/0204 (3 credit hours), HUMN I (2 credit hours, form FPAR and MUSC), and HUMN II (3 credit hours, from ENGL 0205, 0206, 0207, 0208, 0220, or 0327). Two additional courses (5 credit hours) can be selected from any Humanities electives.

Social Science Requirements (18 credit hours)
Specified courses: History 0103 (3 credit hours), History 0104 (3 credit hours), and ECON 0201(3 credit hours) Additional courses (9 credits hours) should be elected from: Economics (ECON), History (HIST), Geography (GEOG), Political Science (POLS), Psychology (PSYC), Sociology (SOCI), and Social Work (SOWK).

Natural Science Requirements (12 credit hours)
These credits should be elected from the following departments: Biology (BIOL), Chemistry (CHEM), or Physics (PHYS). Course work in natural science must include the equivalent of a two-semester sequence (with lab) for Science majors. The PHYS 310 and 311 sequence is strongly recommended.

Mathematics Requirements (26 credit hours)
MATH 0107 (4 credit hours) and MATH 0108 (4 credit hours), MATH 0207 (4 credit hours), MATH 0208 (4 credit hours), MATH 0209 (4 credit hours), MATH 0507 (3 credit hours) and CSCI 0300 (3 credit hours)
Some students are exempted from MATH 0107 and MATH 0108 based on Mathematics placement policy and/or SAT/ACT (math) scores. If so, the credits must be compensated with Natural Science electives, Computer Science electives or other Mathematics Courses.

Computer Science Requirements (50 credit hours)
Specified CSCI Courses (36 credit hours): CSCI 0150, CSCI 0210, CSCI 0220, CSCI 0225, CSCI 0230, CSCI 0235, CSCI 0340, CSCI 0370, CSCI 0430, CSCI 0435, CSCI 0445, CSCI 0481.
Four CSCI elective: (12 credit hours).
Senior Seminar: CSCI 451 & 452 (2 credit hours).

COMPUTER SCIENCE MAJORS
Summary of Requirements –Information Systems Option

University Requirements (4 credit hours)
Orientation – OREN 0100 (1 credit hour) and OREN 0101 (1 credit hour)
Physical Education – 2 PHED courses for 2 credit hours.
English Proficiency Exam – Take during sophomore year after ENGL102

Humanities Requirements (19 credit hours)

Specified courses: ENGL 0101 (3 credit hours), ENGL 0102 (3 credit hours), ENGL 0203/0204 (3 credit hours), HUMN I (2 credit hours, form FPAR and MUSC), and HUMN II (3 credit hours, from ENGL 0205, 0206, 0207, 0208, 0220, or 0327). Two additional courses (5 credit hours) can be selected from any Humanities electives.

Social Science Requirements (18 credit hours)
Specified courses: History 0103 (3 credit hours), History 0104 (3 credit hours), and ECON 0201(3 credit hours) Additional courses (9 credits hours) should be elected from: Economics (ECON), History (HIST), Geography (GEOG), Political Science (POLS), Psychology (PSYC), Sociology (SOCI), and Social Work (SOWK).

Natural Science Requirements (12 credit hours)
These credits should be elected from the following departments: Biology (BIOL), Chemistry (CHEM), and Physics (PHYS). Course work in natural science must include the equivalent of a two-semester sequence (with lab) for science majors. The PHYS 310 and 311 sequence is strongly recommended.

Mathematics Requirements (15 credit hours)
MATH 0107 (4 credit hours) and MATH 0108 (4 credit hours), MATH 0227 (4 credit hours) and CSCI 0300 (3 credit hours)
Some students are exempted from MATH 0107 and MATH 0108 based on Mathematics placement policy and/or SAT/ACT (math) scores. If so, the credits must be compensated with Natural Science electives, Computer Science electives or other Mathematics Courses.

Computer Science Requirements (47 credit hours)
Specified CSCI Courses (33 credit hours): CSCI 0150, CSCI 0210, CSCI 0212, CSCI 0220, CSCI 0225, CSCI 0230, CSCI 0340, CSCI 0370, CSCI 0405, CSCI 0415, CSCI 0481
Four CSCI elective: (12 credit hours).
Senior Seminar: CSCI 451 & 452 (2 credit hours).

Business Requirements (15 credit hours)
Specified Business courses: BUSN 0211, BUSN 0212, BUSN 0331, BUSN 0406, ECON 0300

COURSES PRIMARILY FOR UNDERGRADUATE STUDENTS IN COMPUTER SCIENCE

CSCI 0100. INTRODUCTION TO COMPUTER CONCEPTS AND APPLICATIONS. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. Instruction and tutoring in basic computer skills, designed for students with little or no background in Computer Science. An overview of computer applications including word processors, spreadsheets, databases, and other popular software. This course includes hands-on experience with microcomputers. **This course cannot be used as a CSCI elective for CSCI majors.** Prerequisites: None.

CSCI 0110. BASIC PROGRAMMING**.** 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. An introduction to computer programming on microcomputers using a programming language such as

a modern version of BASIC, Visual Basic, or Quick Basic. **This course cannot be used as a CSCI elective for CSCI majors.** Prerequisites: None

CSCI 0150. INTRODUCTION TO COMPUTER SCIENCE**.** 1st and 2nd Semesters, Summers. Lect. 3, Lab 2, 3 credits. This course is designed to introduce students to fundamentals of computer science and technologies. Topics include history of computer, operating system, computer structure, data storage, database, computer network, and other areas in computing. Problem solving skills, algorithms, and programming concepts are also covered. Co-Prerequisites: MATH 0107 or Departmental Approval.

CSCI 0205. FORTRAN PROGRAMMING. 1st and 2nd Semesters. Lect. 3, 3 credits. Introduction to structured programming and problem solving through the use of FORTRAN. Engineering and scientific applications will be stressed. Topics will include sequencing and control structures, subprograms, files, arrays, algorithmic development, debugging and documentation. Programming projects will be assigned. **This course cannot be used as a CSCI elective for CSCI majors.** Prerequisite: Math 0107 or Departmental Approval.

CSCI 0210. PROGRAMMING I. 1st and 2nd Semesters. Lect. 3, Lab 2, 3 credits. This course will cultivate analytical skills by presenting Computer Science as a problem solving discipline with emphasis on the logic, functions, algorithmic problems, and computerization of algorithms. Programming projects will be required. Prerequisites: CSCI 0150 and MATH 0107 or Departmental Approval.

CSCI 0212. VISUAL BASIC. 2nd Semester. Lect. 3, 3 credits. This course introduces event-driven computer programming using the Visual BASIC programming language. Topics include input/output operations, syntax, program structure, module and form level events, procedures, variables, and constants, arithmetical operations, functions, loops, conditional statements, object-oriented programming, interface design, controls, decisions, creating menus and dialog boxes, looping, arrays, accessing database files, and other related topics. On-screen components such as command buttons, text boxes, option buttons, check boxes, list boxes and forms are also discussed. The course will also have students work with Visual Basic for Applications to program Microsoft applications such as Excel, Access, and Word. Prerequisites: CSCI 0210 or Departmental Approval.

CSCI 0220. PROGRAMMING II. 1st and 2nd Semesters. Lect. 3, Lab 2, 3 credits. This course is designed to introduce students to design and develop medium size programs through different types of applications. The disciplines of software engineering will be used for program development. Essentially, this course covers the use of object-oriented programming to implement software solutions. Students will learn how to design a solution to a problem by reusing existing components, and by creating new components using inheritance. Other topics include: pointers, exception handling, standard template library and recursion. Prerequisites: CSCI 0210 or Departmental Approval.

CSCI 0225. COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE. 1st and 2nd Semesters. Lect. 3, 3 credits. Number systems, Computer function and interconnection, Fundamental of digital logic, Memory technology and organization, Input and output,

Fundamental of digital logic, Registers and arithmetic and logic unit, and Computer arithmetic. Prerequisites: CSCI 0210 and MATH 0108 or Departmental Approval.

CSCI 0227. PROGRAMMING LANGUAGES. 1st Semester. Lect. 3. Features of several languages. Principles of programming language design. Study and comparison of different programming languages and their implementations. Appropriate assignments covering several languages. Prerequisites: CSCI 0220 or Departmental Approval.

CSCI 0229. C++ FOR ENGINEERING. 1st and 2nd Semesters**.** Lect. 3, Lab 0, 3 credits. To provide students with the fundamentals of structured programming for science and engineering problems using the C++ programming language. Content such as, but not limited to C++, classes and objects, arrays, pointers and references, operators and friends, inheritance, derived classes, polymorphism, and virtual functions will be introduced. Prerequisites: MATH 0108 or Departmental Approval.

CSCI 0230. DATA STRUCTURES. 1st and 2nd Semesters. Lect. 3, 3 credits. This course is designed to introduce students to the description, properties and storage (array and pointer based) of abstract data structures including stacks, queues, lists and trees. Introduce algorithms for efficient searching, insertion and deletion in data structures stored in internal memory. Analysis of algorithms for sorting and hashing is also discussed. Prerequisites: CSCI 0220; Co-requisite: CSCI 0300 or Departmental Approval.

CSCI 0235. COMPUTER DESIGN AND ARCHITECTURE. 1st and 2nd Semester. Lect. 3, 3 credits. Digital logic gates and Boolean algebra. Function minimization and K-maps. Design of combinational logic modules: adders, decoders, multiplexers, PLAs, etc. Design of control unit, arithmetic and logic unit, instruction set, instruction formats, addressing modes, microprogramming. Introduction to parallel and distributed computer systems. Prerequisites: CSCI 0225 or Departmental Approval.

CSCI 0300. DISCRETE MATHEMATICAL STRUCTURES. 1st and 2nd Semester. Lect. 3, 3 credits. Topics include sets, relations, functions, propositional and predicate logic, graph theory and applications, proof techniques, permutations and combinations, and recurrence relations. Prerequisite: CSCI 0220 or Departmental Approval.

CSCI 0315. FILE ORGANIZATION AND MANAGEMENT. 1st Semester. Lect. 3, 3 credits. This course is designed to introduce students to the design, management, and organization of fast and flexible file structures on mass storage with emphasis on file structure design concepts and mass storage constraints. Concepts of organization and processing of files, physical characteristics of storage media, sequential file creation and update, direct file processing techniques, indexing structures and hashed files are discussed. Prerequisites: CSCI 0220 or Departmental Approval.

CSCI 0335. COMPUTER ARCHITECTURE. 2nd Semester. Lect. 3, 3 credits. Organization of central processing unit, memory, and input/output devices. Design of control unit, arithmetic and logic unit, instruction set, instruction formats, addressing modes, microprogramming. Introduction to parallel and distributed computer systems. Prerequisites: CSCI 0235 or Departmental Approval.

CSCI 0340. DATA BASE MANAGEMENT SYSTEMS. 2nd Semester. Lect. 3, 3 credits. This course is designed to provide an understanding of database environments, basic technical concepts and system resources for data, data models, database management systems, database design, and use, management, and administration of databases. Students who successfully complete this course will be able to use the entity-relationship data model to represent business data requirements, to translate that model into a relational schema, and to build and use a relational database that implements the schema. Students will develop software to interact with a database using SQL statements. Prerequisite: CSCI 0230 or Departmental Approval.

CSCI 0345. BUSINESS DATABASE MANAGEMENT SYSTEMS. 1st Semester. Lect.3, 3 credits. Involves the study of generalized database management systems. The study will include logical data base models and physical base models based primarily on the relational model. The students will create a database utilizing an established database management system. The focus is on issues and principles of managing organizational data. Students will get extensive experience in developing data models, creating relational databases, and formulating and executing queries based on business applications. Prerequisites: Junior Standing or Departmental Approval

CSCI 0350. DESIGN AND ANALYSIS OF ALGORITHMS. 2nd Semester. Lect. 3, 3 credits. Algorithm development using Pseudo Languages; Classification of Algorithms, e.g., Recursive, Divide and Conquer, Greedy, etc., Dynamic programming. Branch-and-bound techniques. Basic search methods and back-tracking. Complexity issues and NP-Complete problems. Introduction to Parallel algorithms. Prerequisites: CSCI 0230 and CSCI 0300 or Departmental Approval.

CSCI 0355. E-BUSINESS. 2nd Semester. Lect. 3, 3 credits. The course is designed as an introduction to e-business and related concepts. Social and business aspects of e-business will be discussed and e-marketing, e-commerce and e-operations concepts will be explained. Electronic business systems will be described and legal and ethical issues in the context of e-Business will be discussed. This course will examine four major topic areas: Design and infrastructure of online business website, eBusiness design, comprehensive business plan, social and ethical issues in eBusiness. Prerequisites: Junior Standing or Departmental Approval

CSCI 0360. APPLIED STATISTICS AND STATISTICAL COMPUTING. 1st Semester. Lect. 3, 3 credits. Fundamental concepts of data representation and organization, measure of central tendency, elementary probability theory, frequency distributions, basic sampling theory, hypothesis testing, correlation and regression, Chi-square test and t-test. Students may use currently available software to analyze data. Prerequisites: CSCI 0210 and MATH 0108 or Departmental Approval.

CSCI 365. E-BUSINESS SYSTEMS DEVELOPMENT. 2nd Semester. Lect. 3, 3 credits. This course focuses on using high-tech computer technology to develop systems for conducting and supporting business through the Internet. Students will learn the foundation concepts of e-Business and how to design, develop, implement, and maintain business systems used to support the e-Business strategies of an organization. Students will develop e-Business enabled web sites using web-based technologies. Prerequisites: CSCI 0345 and CSCI 0355 or Departmental Approval.

CSCI 0366. INTRODUCTION TO BIOSCIENCE COMPUTING. 1st Semester, Lect. 3 Lab 3, 4 credits. Programming in R. Working with datasets in R. Basic data analysis and graphing. Applications of probability theory, probability distribution and bayesian data analysis to biological problems. PAM and BLOSUM scoring matrices for sequence analysis. Markov chain theory. Hidden Markov Model. Labs for applying computing to solve biological problems. Also joint-listed as BIOL 0366. Prerequisite: junior, senior standing.

CSCI 0368. INTRODUCTION TO BIOINFORMATICS. 1st Semester, Lect. 3, Lab 3, 4 credits. Fundamental principles of Bioinformatics. Topics include biological databases, sequence similarity algorithms, machine learning, phylogeny, motif discovery, comparative genomics, structural genomics, and micro-array technologies. Also listed as BIOL 0368 and EVSC 0368. Prerequisite: junior, senior standing.

CSCI 0370. COMPUTER NETWORKS. 1st Semester. Lect. 3, 3 credits. Data Communications and Networks Overview, Protocol Architecture, Circuit and Packet switching, ATM, Routing, Congestion control, Wireless networks, Cellular Wireless Networks, Security services and mechanisms in ISO Reference Model. Prerequisites: CSCI 0220 and CSCI 0225 or Departmental Approval.

CSCI 0380. INFORMATION SECURITY. 1st Semester. Lect. 3, 3 credits. This is an introductory course in information security which presents the students an overview of the fundamental principles, the security problems, risk analysis, and policies. Topics include basic concepts, access control, security policies, authentication, assurance and trust, information flow, vulnerabilities analysis, incident response, and legal and ethical issues. Prerequisites: CSCI 0220 or Departmental Approval.

CSCI 0385. SECURITY ENGINEERING. 2nd Semester. Lect. 3, 3 credits. This course fills the gap between the theories of secure systems and the skill based training of System Administrators. The focus is on the security technologies used to implement security policies. Topics covered include Introduction to Security Engineering concepts, Security Protocols, Access Control, Cryptography, Multilevel Security, Multilateral Security, Biometrics, Network Attack and Defense, Security in Banking, Emission Security, Telecom Security, Monitoring and Metering, Security Printing and Seals, Physical Tamper Resistance, System Security Engineering Capability Maturity Model(SSE-CMM), Security Requirements & Risk Analysis, FMEA, FTA, CC. Prerequisites: Junior Standing and Departmental approval.

CSCI 0390. COMPUTER FORENSICS. 1st Semester. Lect. 3, 3 credits. This course introduces fundamentals of computer forensics and cyber-crime scene analysis including laws, regulations, and international standards. It takes a detailed, hands-on approach to the investigation of incidents in which computers or computer technology play a significant or interesting role. Students completing this course will be familiar with the core computer science theory and practical skills necessary to perform rudimentary computer forensic investigations, understand the role of technology in investigating computer-based crime, and be prepared to deal with investigative bodies at a rudimentary level. Prerequisites: CSCI 0220 or Departmental Approval

CSCI 0402. VISUAL BASIC FOR ENGINEERS. 1st and 2nd Semester. Lect. 3, 3 credits. Introduction to visual programming on microcomputers using Visual Basic. Programming applications include graphics control, mouse event, keyboard event, interfacing with windows, accessing files, file-system controls, accessing multimedia, displaying, and printing. Prerequisites: CSCI 0229 or Departmental Approval

CSCI 0405. SYSTEMS ANALYSIS AND DESIGN. 2nd Semester. Lect. 3, 3 credits. Survey of tools and techniques for systems analysis and design used by systems analysts. Documentation of analysis and design outcomes using CASE tools. Input and output designs. Other useful skills required for the systems analyst: project management, cost-benefit analysis, fact-finding, and communications. Case studies. **This course cannot be used as a CSCI elective for CSCI (general) majors.** Prerequisites: CSCI 0415 or Departmental Approval.

CSCI 0410. INDEPENDENT STUDY. 1st and 2nd Semesters. 1-3 credits. Designed to provide an opportunity for outstanding Computer Science majors to study advanced topics not covered in required courses. The student is expected to do most of the work on his own under the supervision and with the assistance of a member of the staff. Prerequisite: Departmental Approval.

CSCI 0412. VISUAL C++. 2nd Semester. Lect. 3, 3 credits. This course teaches the student how to develop state of the art windows applications by using the visual C++ programming language. This course covers controls, properties, events, object linking and embedding (OLE) controls, menus, dialog boxes, graphics, and single-document interface (SDI) applications. Prerequisites: CSCI 0229 or Departmental Approval.

CSCI 0415. MANAGEMENT INFORMATION SYSTEMS. 1st Semester. Lect. 3, 3 credits. Understanding the values and uses of information and information technology for management of complex organizations. Transaction processing trends. Decision support systems and Expert systems. Office automation technology. Information Technology for strategic advantage, planning, and control. International and ethical issues. Case studies of real-world problems. **This course cannot be used as a CSCI elective for CSCI (general) majors.** Prerequisites: CSCI 0230 or Departmental Approval.

CSCI 0420. DISCRETE SYSTEM SIMULATION. 1st Semester. Lect. 3, 3 credits. Fundamental concepts of computer simulation, discrete system modeling, Monte Carlo simulations, random number generation, data collection and validation, analysis of simulation output using statistics, selection of probability distribution, and event generation. Students will complete a simulation project. Prerequisites: CSCI 0230 and MATH 0507/ECON 300 or Departmental Approval.

CSCI 0421. INFORMATION ASSURANCE MANAGEMENT. 2nd Semester. Lect. 3, 3 credits. Students learn how to operate an information system at a specified level of trust. Further, they learn how to analyze and judge the information for validity and reliability to ensure the system will operate at the proposed level of trust. The course contents include understanding of information system architecture, system security measures, systems operations policy, system security management plan, legal and ethical considerations and provision for system operator and

end user training. This is a multi-discipline computer security course. Prerequisites: Math 0208/0227 and departmental approval.

CSCI 0425. SYSTEMS PROGRAMMING. 1st Semester. Lect. 3, 3 credits. Fundamentals of assembler design. Design of loaders and linkers. Microprocessor design. Overview of compilers. A major programming project is required. Prerequisites: CSCI 0225 and CSCI 0230 or Departmental Approval.

CSCI 0429. JAVA FOR ENGINEERS. 2nd Semester. Lect. 3, 3 credits. Introduction to Java Programming language. This course covers structure of the Java language, programming with Java, create applications and applets using Java run-time class libraries, introduction to different features of Abstract Windowing Toolkit (AWT), use standard Java classes and incorporating applets into Web pages. Prerequisites: CSCI 0229 or Departmental Approval.

CSCI 0430. SOFTWARE ENGINEERING. 1st Semester. Lect. 3, 3 credits. An Engineering approach to software design and development. Concepts discussed are software life cycle, software requirements and specifications, object-oriented design, detailed modular design, validation and verification, proving program correctness, software testing, software quality assurance, and project management. Students are required to develop a large scale project implementation in JAVA, C, or C++ programming languages. Prerequisites: CSCI 0230 and CSCI 0300, or Departmental Approval.

CSCI 0431. SOFTWARE SECURITY. 2nd Semester. Lect. 3, 3 credits. Is to address the issues of security practices within the software development lifecycle. The focus of two courses is on the study of various security practices within the context of the software development lifecycle. The course will address security practices that can be used to reduce defects in software as well as reduce the vulnerabilities in software. The course will also expose students to current research topics in the field. Prerequisites: CSCI 0230 and CSCI 0300, or Departmental Approval.

CSCI 0435. OPERATING SYSTEMS. 2nd Semester. Lect. 3, 3 credits. Principles and design of operating systems. The notion of a process, inter-process communication and synchronization, file systems, memory management, multiprocessor and distributed operating systems. A major programming project is required. Prerequisites: CSCI 0225 and CSCI 0230 or Departmental Approval.

CSCI 0445. THEORY OF COMPUTATION. 2nd Semester. Lect. 3, 3 credits. Mathematical models for algorithmic processes and finite automata. Theory of automata, decidability, formal languages, Turing machines, computational complexity, and NP-completeness. Application of theoretical approaches to practical problems. Prerequisites: CSCI 0230 and CSCI 0300 or Departmental Approval.

CSCI 0450. COMPUTER GRAPHICS. 1st Semester. Lect. 3, 3 credits. Hardware and Software components of Computer Graphics Systems. Display files, two and three-dimensional transformations. Clipping and windowing perspective, hidden-line elimination, and shading. Interactive graphics and survey of applications. Prerequisites: CSCI 0230, CSCI 0300 and Math 407 or Departmental Approval.

CSCI 0451. COMPUTER SCIENCE SEMINAR Part 1. 1st and 2nd Semester. Lect. 1, 1 credit, Required for all CSCI majors. The first semester of a student's senior year the student identifies a subject area, does background reading on the subject, does extensive research or designs a substantial software project related to a Computer Science topic. Students are expected to participate in the faculty and visiting lecturer series. Prerequisites: Departmental Approval.

CSCI 0452. COMPUTER SCIENCE SEMINAR Part 2. 1st and 2nd Semester. Lect. 1, 1 credit, Required for all CSCI majors. The last semester of a student's senior year, the student continues the project started in CSCI 0451. The student, working with a mentor, will complete design (and/or research) and project implementation. Students are expected to participate in the faculty and visiting lecturer series. The student will write a paper on the materials collected during the research of the Computer Science topic and present the findings to the department faculty for evaluation. Prerequisites: CSCI 0451 or Department Approval.

CSCI 0455. COMPILER DESIGN AND CONSTRUCTION. 2nd Semester. Lect. 3, 3 credits. Review of language structures; symbol tables; scanning; object code generation; diagnostics; code optimization, and compiler writing languages. The student will be assigned projects involving the implementation of some parts of the compiler. Prerequisites: CSCI 0225, CSCI 0230 and CSCI 0300, or Departmental Approval.

CSCI 0459. INTRODUCTION TO COMPUTER SECURITY. Lect. 3, 3 credits. Introduction to the basics of security policies, models, and the mechanisms for secrecy, integrity and availability. Topics include threats and attacks, security policies, access control models, cryptograph, E-Commerce, network security, risk management, and ethical issues. This is a multi-discipline computer security course. Prerequisites: Math 0208/0227 or departmental approval.

CSCI 0463. INTRODUCTION TO COMPUTER GAMING. 1st Semester. Lect. 3, 3 credits. This course discusses the process of game development. It examines the roles of different participants in the development process and how the technical development and the artistic development proceed in computer gaming development platform. It also studies the use of the computer to model and graphically render two- and three-dimensional structures used in computer gaming. Topics include computer gaming, graphics devices and languages, 2- and 3-D object representations, and various aspects of rendering realistic images. Students will be expected to implement programs which span all stages of the 3-D graphics pipeline, including clipping, projection, arbitrary viewing, hidden surface removal and shading. Group work is emphasized, especially the importance of collaboration between technical and artistic efforts. Prerequisites: CSCI 0230 or Departmental Approval.

CSCI 0465. Introduction to High Performance Computing. 2nd Semester. Lect. 3, 3 credits. Introduction to parallel/distributed computer architectures. Numerical methods using sequential programming. Parallel programming techniques. Numerical methods using parallel programming. Applications to typical problems from chemistry, mechanical engineering, electrical engineering, etc. Prerequisites: Any introductory programming course such as CSCI 0229, CSCI 0150, CSCI 0205. MATH 0208 or Departmental Approval

CSCI 0480. ADVANCED COMPUTER NETWORKS. 2nd Semester, Lect. 3, 3 credits. Local Area Networks Overview. High-speed LANs, Wireless LANs, Internet Protocols and Operations, Transport protocols, Internet and LAN Security, Wireless Security, Distributed Applications, Network Management protocols. Prerequisites: CSCI 0370 or Department Approval.

CSCI 0481. ETHICAL AND SOCIAL ISSUES IN COMPUTING. 2nd Semester. Lect. 3, 3. To provide students with an introduction to the social, ethical, and legal affects of computing on society and its users. Ethical concepts, professional codes of ethics, and the influence of computing on individuals, organizations, and the global economy will be addressed. Prerequisites: CSCI 0220 or Departmental Approval.

CSCI 0483. NETWORK SECURITY. 2nd Semesters. Lect. 3, 3 credits. This course introduces the fundamentals of network security, security vulnerabilities, attack methods, and mitigation approaches. A comprehensive list of security issues related to networking design and development will be discussed. Topics include ethics in network security, basic cryptography, Firewalls, threats and security measures at different TCP/IP layers. SSH protocol, E-mail security, and Web security. Prerequisites: CSCI 0370 or Departmental approval.

CSCI 0485. ARTIFICIAL INTELLIGENCE. 1st Semester. Lect. 3, 3 credits. Introduction to basic concepts and techniques of artificial intelligence and intelligent systems. Topics include: facts representation, variables and quires with emphasis on backtracking, definitions and inferences, arithmetic and list processing in Prolog, LISP, Scheme, etc. Rule based systems, machine intelligence, heuristic programming, and natural languages. Prerequisite: CSCI 0230 and CSCI 0300 or Departmental Approval.

CSCI 0487. INFORMATION WARFARE. 1st Semester. Lect. 3, 3 credits. This course introduces students the nature of information warfare, security threats, and the countermeasures. Students will gain an understanding of information warfare principles and technologies, including vulnerabilities, computer break-ins, denial-of-service, and other network attacks. They will learn about the countermeasures, such as authentication, encryption, auditing, monitoring, intrusion detection, and firewalls, and the limitations of those countermeasures. In addition to cyber security, ethics, and legal considerations are also addressed during the course. Prerequisites: CSCI 0370 or Departmental Approval.

CSCI 0490. INTRODUCTION TO ROBOTICS. 2nd Semester. Lect. 2, Lab 2, 3 credits. Early image processing; images and shapes; motion understanding from images; shape representation, model based vision system; signal processing; feature extraction, recognition systems; kinematics and dynamics; trajectory and task planning; control; robot programming; locomotion. Prerequisites: CSCI 0230, or Departmental Approval.

CSCI 0495. VLSI SYSTEMS. 2nd Semester. Lect. 2, Lab 2, 3 credits. VLSI technology, NMOS, CMOS; fabrication and design of chips; logic design; Design techniques for computer hardware; clocked and self timed systems; hardware synchronization circuits; finite state machines. Prerequisites: CSCI 0335 or Departmental Approval.

CSCI 0499. SPECIAL TOPICS. 1st Semester. Lect. 3, 3 credits. Topics are selected to supplement and enrich existing courses and lead to the development of new courses. Prerequisites: Departmental Approval.

CSCI 0505. DATABASE DESIGN. 1st Semester. 3 credits. Goals of DBMS relationships, logical, and physical organizations, schema and subschema, hierarchical, network, and relational models; first, second, and third normal forms of data relations. Canonical schema. Data independence; forms, applications, examples, design strategies; relational algebra, relational calculus, data structures for establishing relations. Query functions. Design and translation strategies. Prerequisites: CSCI 0340 or Departmental Approval.

CSCI 0530. PARALLEL PROCESSING. 1st Semester. Lect. 3, 3 credits. Hardware and software elements of multiprocessors, multi-computers, pipeline and array machines, data flow architecture; design principles related to machine structures, control software and hardware, data storage and access, parallel programming languages, and algorithm development as well as implementation for various science and engineering applications using parallel programming systems such as C-Linda, PVM, MPI, etc. Prerequisites: CSCI 0335 or Departmental Approval.

CSCI 0533. INTRODUCTION TO CRYPTOGRAPHY: 1st Semester. Lect. 3, 3 credits. This course is intended for senior and graduate students in science, engineering, mathematics and computer science. Prerequisites: CSCI 0300 or Department Approval.

COLLEGE OF ENGINEERING

MISSION STATEMENT

The College of Engineering has as one of its major objectives the preparing of individuals for a full, satisfying and competitive career in an era when society demands comprehensive solutions to environmental and technological problems. The programs in engineering prepare professionals with the ability to apply technology for the benefit of society. It has become clear that in producing the goods and services demanded by an expanding populace, technical solutions of tomorrow will incorporate multi-faceted problem-solving which will involve not only socio-political impact but also economic and global ecological components.

As a corollary to the instructional and service elements of its mission, the research goals of the College are designed to preserve, refine, and develop further the bodies of knowledge already discovered for dissemination and sharing; discover new knowledge for the continued growth of individuals and society; seek out new applications of knowledge to help resolve the problems and desires of modern society and enrich it; and to be able to practice specific professional disciplinary areas in the marketplace.

Students in Engineering are provided with a sound scientific and technical foundation, which employs the latest techniques of the discipline. They are also provided with a broad socio-humanistic background, which is so essential to twenty-first century solution-making. Graduates are encouraged to become professionally qualified and seek graduate study or continuing education as a mechanism for their personal development.

Graduate programs are available at the master's level in Electrical Engineering and in Mechanical Engineering and the Doctor of Philosophy in Materials Science and Engineering. The graduate program allows for flexibility necessary to accommodate a broad spectrum of educational objectives.

Degrees offered:

Bachelor of Science in Aerospace Science Engineering
Bachelor of Science in Chemical Engineering
Bachelor of Science in Electrical Engineering
Bachelor of Science in Mechanical Engineering

Master of Science in Electrical Engineering
Master of Science in Electrical Engineering with concentration in Systems Engineering
Master of Science in Mechanical Engineering

Doctor of Philosophy in Materials Science and Engineering

The programs in Aerospace Science Engineering, Chemical, Electrical and Mechanical Engineering are accredited by EAC/ABET (Engineering Accrediting Commission/ Accreditation Board for Engineering and Technology).

Significant library and research facilities are available to students in the College of Engineering. In addition to the main library, the College is served by a branch library, fully staffed with trained, full-time personnel. The library maintains an extensive listing of books and references as well as access to media and the World Wide Web.

The College has research facilities in such fields as aerodynamics, electronics, control systems, systems engineering, mechatronics, power systems, fluid mechanics, combustion, heat transfer, Instrumentation, solid mechanics, metals, polymers, composite, and nanomaterials, alternative sources of energy, environmental engineering, and renewable energy.

Instructional and research laboratories in the College include: Computer-Aided Design, Computer Applications, Mechanical Dissection, Fluid Mechanics and Heat Transfer, Materials and Stress Analysis, Software Engineering, Artificial Intelligence, Electrical Machines, Power Electronics, Radar, Optics, Advanced Digital Signal Processing, Power Systems, Process Control and Unit Operations, Propulsion, VLSI Design and Simulation, Microprocessor, Digital Signal Processing, Microelectronic Fabrication, Alternative Source of Energy, Flight Vehicle Design and Wind and Water Tunnel Systems.

REQUIREMENTS FOR ADMISSION

ENGINEERING PROGRAMS

Admission to the Engineering Program is contingent upon establishing credit in fifteen units of high school work as prescribed below.

(a) Eight (8) units required as follows:
English (3), Mathematics (4) and Physical Science (1)
(b) Four (4) additional units from the following fields:

English, mathematics, science, and socio-humanistic courses.

(c) Three (3) units chosen from any other subjects in which credit for graduation from high school has been allowed.

A student may be admitted unconditionally to the Engineering Program if he/she meets all other entrance requirements to Tuskegee University and has a composite SAT score of 900 or an ACT of 21.

A limited number of conditional admissions may be granted to those applicants whose composite SAT score falls below 900. Those admitted conditionally will be required to earn a cumulative grade point average (GPA) of 2.00, based on a 4.00 scale, by the end of the second semester in order to be admitted as a regular student in Engineering. Failure to attain a 2.00 GPA in the required time period may be considered grounds for dismissal from the engineering program.

TRANSFER STUDENTS

Students who wish to enter from other colleges or universities must be eligible to re-enter the institution last attended and must furnish (a) letter of honorable dismissal from the institution last attended, (b) certificate of high school work covering the entrance requirements as described above and (c) official transcript and course descriptions of work done in all institutions previously attended. Credit will be given toward graduation for those courses with a grade of "C" or better, and which are similar to those in the curriculum.

FINANCIAL ASSISTANCE

Federal and University Programs

Financial aid is available to qualified students. The program is administered by the Director of Financial Aid. Numerous scholarships are available to students based on academic merit and achievement. Further details concerning aid may be secured from the Office of Financial Aid, Carnegie Hall, Tuskegee University, Tuskegee, AL 36088.

Tutorships are available to outstanding students possessing leadership qualities. Candidates selected for these positions are expected to tutor in laboratory and night tutoring sessions.

Undergraduate Research Assistantships are available to qualified students. Candidates selected for these positions are expected to work with graduate students under the supervision of research faculty in fields of special interest to the faculty.

Reserve courses training opportunities are available. Army ROTC, Air Force ROTC, and Navy ROTC provide tuition support to students at Tuskegee University. Cooperative Education programs also are available. Participating companies offer financial assistance to selected students.

VETERANS

The College welcomes veterans seeking educational opportunities in engineering and physics. Veterans interested in attending Tuskegee University should contact the nearest Office

of Veterans Affairs, the local Urban League, or, Office of the Dean, College of Engineering, Tuskegee University.

PRE-COLLEGE AND SPECIAL PROGRAMS

Minority Introduction to Engineering (MITE): Several one-to-two week special sessions are held during the summer in the College of Engineering for high school juniors/rising seniors. Students selected for this program are exposed to various aspects of engineering through a series of lectures, laboratory demonstrations, workshops, discussions, and field trips. Extensive counseling is provided by well-trained engineering tutors.

Freshmen Accelerated Start-up Training for Retention in Engineering Curricula (FASTREC): An eight (8) week special pre-engineering program of full-time study is offered during the summer at Tuskegee University. Prospective engineering students are selected to pursue an intensive program of study in Mathematics, particularly the Calculus, and Engineering. Up to seven (7) semester credit hours in Mathematics and Freshman Engineering may be earned toward the B.S. degree in Engineering. Advanced placement in Mathematics depends on Pre-Calculus Mathematics achievement.

Dual Degree Program: Under the dual degree program students attending Tuskegee may pursue a program of study geared toward obtaining two B.S. degrees simultaneously. Engineering and Physics, Engineering and Mathematics, Engineering and Computer Science, and Engineering and Chemistry are some of the combinations available at Tuskegee University.

Two-Three Programs: Several colleges and universities are affiliated with Tuskegee in a versatile "two-three program" which leads to two bachelor's degrees upon completion of a five-year course of study. Tuskegee University cooperates with the following institutions: Alabama A and M, Alabama State, Bethune-Cookman, Jackson State, Miles, Oakwood, Paine, Stillman, Talladega and Tougaloo.

Briefly, participating students enroll at one of the cooperating institutions, where they pursue a normal liberal arts major for three years with emphasis on Science and Mathematics. Upon successful completion of this phase and recommendation of the institution, students transfer to Tuskegee and specialize in a major engineering discipline for two years. Students receive a B.A. degree from the first institution and a B.S. in Engineering from Tuskegee at the end of the program. Interested applicants should contact the Office of the Dean of the College of Engineering, Tuskegee University, Tuskegee, AL 36088.

Cooperative Education

Cooperative Education Program: The College of Engineering offers students an opportunity to combine academic studies and industrial work experience through participation in the Cooperative Education Program. Alternate sessions are spent in school and in industry (or governmental agencies). This is usually a five-year program which enables the students to gain professional maturity and financial assistance to help defray their educational expense.

Pre-Cooperative Program: Several agencies and industries have developed, in conjunction with Tuskegee University, a Pre-cooperative Program. High school graduates may enter a summer pre-cooperative period in industry and receive their first year's tuition and textbook expenses from industry. Assuming satisfactory progress, the student then enters the regular Cooperative Program as a rising sophomore.

For further information, contact the Vice President of Student Affairs.

ACADEMIC POLICIES FOR ENGINEERING MAJORS

Class Load

The minimum load for a full-time undergraduate engineering student is (12) credit hours per semester. A student who registers for less than the minimum load is classified as a part-time student.

The usual maximum class load is eighteen (18) semester hours and in cases where four-hour courses exist, the load may reach nineteen (19) credit hours for a given semester, exclusive of ROTC course requirements. Only junior and senior students whose cumulative grade point averages are greater than 3.00 may register for hours beyond nineteen (19) credits with approval from the students' faculty advisers and the Dean.

Minimum Standards for Retention

The standards for retention are listed in the TUSKEGEE UNIVERSITY ACADEMIC REGULATIONS AND PROCEDURES FOR UNDERGRADUATES.

Requirements for Graduation

The requirements for graduation are listed in the TUSKEGEE UNIVERSITY ACADEMIC REGULATIONS AND PROCEDURES FOR UNDERGRADUATES. In addition, the following special requirements for engineering students are listed for references:

a. They must earn a minimum grade of "C" in required Engineering, Mathematics, and Science courses.
b. They must satisfy the engineering faculty that they are suitable representatives of Tuskegee University.

Academic Advisement

All students in the College are advised in the selection of courses and guided in the registration process by a designated faculty advisor.

Advisor's Responsibility

Faculty Advisor's responsibility includes:

a. Explaining the curriculum and provisional sheet to the advisee.
b. Explaining general education, science, technical, and design electives and their sequential nature to the advisee.
c. Assisting the students in the selection of courses and other academic matters.

Student's Responsibility

It is the student's responsibility to:

a. Understand the curriculum, Academic Regulations and Procedures for Tuskegee University.
b. Choose the courses in the order shown on the flowchart which guarantees that the co-requisites and pre-requisites are satisfied.
c. Keep the Faculty Advisor informed about his/her plans, academic progress and problems.
d. Meet all requirements for graduation.

CURRICULA REQUIREMENTS FOR ENGINEERING DISCIPLINES

Tuskegee University requires all undergraduate students to take two orientation courses (OREN 0100 and OREN 0101, 1 credit hour each) and two physical education courses (1 credit hour each). A program of electives is designed to provide opportunities for cultural enrichment and to enable the in-depth study of selected areas of interest. Tuskegee University has implemented a core curriculum for all undergraduates effective June 2008. The core curriculum requires all undergraduate students to take 39 hours of courses in the areas of humanities/fine arts (14 credit hours), social/behavioral sciences (12 credit hours), and natural science/mathematics (13 credit hours). The general education components of the core curriculum are humanities/fine arts (14 credit hours) and social/behavioral sciences (12 credit hours). These areas are further sub-divided into topical areas listed below.

General Education Component (For All Engineering Majors)

Requirements	Credit hours
ENGL 0101	3
ENGL 0102	3
Fine arts/music	2
English literature	3
Philosophy	3
History	6
Political science/Sociology/Psychology/Economics	6
Total	26

All electives (general education, science, technical, and design) are chosen in consultation with the faculty advisor and require departmental approval. Variations of Freshman schedules may be necessary depending on a student's preparation and ability, and on possible need to earn partial support. The key to success in the engineering courses lies in the mathematics sequence. The Department of Mathematics may recommend placement in pre-Calculus Mathematics courses; these courses do not earn degree credit in Engineering.

AEROSPACE SCIENCE ENGINEERING (AENG)

Aerospace Science Engineering is concerned with engineering applications in the areas of aeronautics (atmospheric flight) and astronautics (space flight). Aerospace Science Engineering thus encompasses theory and application to a variety of flight vehicles ranging from balloons and sailplanes through jet-powered aircraft, rockets, space stations and interplanetary vehicles.

The Aerospace Science Engineering program offers course work in the areas of aerodynamics, air-breathing and rocket propulsion systems, aerospace structures, aircraft stability and control, avionics, flight vehicle design and space applications. Laboratory courses are closely linked to lecture sessions to achieve a proper balance between engineering analysis and engineering practice. Modern laboratories include two low speed, low turbulence wind tunnels, a water tunnel, with flow diagnostic instrumentation, a propulsion laboratory, an instrumentation laboratory, a flight vehicle design laboratory and several computer and graphics laboratories.

AEROSPACE SCIENCE ENGINEERING DEPARTMENTAL MISSION

The mission of the Aerospace Science Engineering Department is to matriculate quality professional graduates through education in the disciplines and technologies pertaining to aerospace vehicles and systems. These graduates shall exceed the entry-level requirements for practice and advanced study in aerospace science engineering. In keeping with the Tuskegee University vision, the department also has missions of outreach and service to the world community.

DEPARTMENTAL OBJECTIVES

The Aerospace Science Engineering program is designed to provide opportunities that will result in the following **student outcomes**:

- A - An ability to apply knowledge of mathematics, science, and engineering
- B - An ability to design and conduct experiments, as well as to analyze and interpret data
- C - An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- D - An ability to function on multidisciplinary teams
- E - An ability to identify, formulate, and solve engineering problems
- F - An understanding of professional and ethical responsibility
- G - An ability to communicate effectively
- H - The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- I - A recognition of the need for, and an ability to engage in life-long learning
- J - A knowledge of contemporary issues
- K - An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

With the **educational objectives** that our graduates will be:

- Successful practitioners in Aerospace Science Engineering or related fields in industry, private practice or government.

- Engaged in graduate studies or continuing education endeavors in engineering or related fields.

- Engaged in professional development by participating in structured professional activities.

Outreach Objectives

- Achieving broader opportunities for economically disadvantaged K-12 students through national pre-college programs.
- Generating and nurturing interest into Aerospace Science Engineering field though informative programs and activities.
- Encouraging students to assist K-12 students in attaining their own educational potential through tutoring and mentoring in local schools.

Research Objectives

- Encouraging transitional design related research in the undergraduate program.
- Conducting research in Aerospace Science Engineering seeking to discover new knowledge and to better understand the current body of knowledge.
- Transferring research into the educational program at an early stage through involving students in conducing and reporting results of such research.

Degrees Offered

Bachelor of Science- Aerospace Science Engineering

Academic Program Description

Aerospace Science Engineering encompasses the areas of aeronautics (atmospheric flight) and astronautics (space flight). Aerospace Science Engineering includes theory and application to a variety of flight vehicles ranging from balloons and sailplanes through jet-powered aircraft, rockets, space stations and interplanetary vehicles. Students receive a sound scientific, mathematical and technical foundation based on the latest techniques of these disciplines. Students are also provided a broad socio-humanistic background, which is also essential for problem solving in a technical age.

Program Curriculum

SUGGESTED CURRICULUM FOR
AEROSPACE SCIENCE ENGINEERING MAJORS

Freshman Year

Ist Semester	**Cr**	**2nd Semester**	**Cr**
MATH 0207 Calculus I	4	MATH 0208 Calculus II	4
CHEM 0231 Inorganic Chemistry	4	PHYS 0310 Gen. Physics I	3
CHEM 0233 Chemistry Lab.	1	PHYS 0313 Gen Physics Lab	1

ENGL 0101 English Comp	3	ENGL 0102 English Comp	3
OREN 0100 Freshman Orientation	1	OREN 0100 Freshman Orien.	1
AENG 0100 Intro. Aero. Sci. Eng	1	CORE History	3
CORE History	3	CORE Hum/Fine Arts	2
Total	**17**	**Total**	**17**

Sophomore Year

Ist Semester	**Cr**	**2nd Semester**	**Cr**
MATH 0209 Calculus III	4	MATH 0307 Differential Eq	3
PHYS 0311 Gen. Physics II	3	MENG 0212 Dynamics	3
PHYS 0314 Gen. Physics II Lab.	1	AENG 0242 Aero. Structures	3
MENG 0211 Statics	3	AENG 0290 Eng. Eth. & Soc.	3
AENG 0267 Flight Mechanics	3	CORE Social Science	3
AENG 0200 Intro. Aero. Sci. Eng. Lab	1	CORE Hum/Fine Arts	3
CSCI 0205 or 0229 Fortran or C++	3		
Total	**18**	**Total**	**18**

Junior Year

Ist Semester	**Cr**	**2nd Semester**	**Cr**
AENG 0244 Aerodynamics I	3	AENG 0317 Aero. Instrument	4
MENG 231 Probability & Statistics	3	AENG 0342 Aero. Structures II	3
MENG 0311 Thermodynamics	3	AENG 342L Aero Struct. Lab	1
AENG 0367 Aero. Design & Analysis	3	AENG 0344 Aerodynamics II	4
CORE Social Science	3	AENG 344L Aerodynamics Lab	1
PHED Elective	1	AENG 0392 Aero R&D Seminar	1
		PHED Elective	1
Total	**16**	**Total**	**15**

Senior Year

Ist Semester	**Cr**	**2nd Semester**	**Cr**
AENG 0340 Fund. of Aero. Mechanics	3	AENG 0401Aerospace Seminar	1
AENG 0346 Propulsion	3	AENG 0429 Eng. Economics	2
AENG 346L Propulsion Lab	1	AENG 0441E.I.T. Review	0
AENG 0370 Acft Stability & Control	3	AENG 0460 Aerospace Controls	3
MATH 0461 Engineering Math	3	AENG 460L Aero. Controls Lab	1
AENG xxxx Technical Elective	3	AENG 0467 Flight Vehicle Des.	4
		AENG xxxx Technical Elective	3
Total	**16**	**Total**	**14**
TOTAL:		**131 hours**	

Courses for Undergraduates

AENG 0100. INTRODUCTION TO AEROSPACE ENGINEERING. 1st Semester Lect. 1, Lab. 0, 1 credit. This course includes a historical background on the evolution of manned atmospheric and space flight vehicles, and an introduction to aerospace science and the engineering profession. Other topics include introductory discussions on concepts of aerodynamics, airplane performance, propulsion, stability, structures.

AENG 0200. INTRODUCTION TO AEROSPACE ENGINEERING LABORATORY. 2nd Semester Lect. 0, Lab 1, 1 credit. Topics include an Introduction to Engineering Graphics, visualization, Cartesian and Polar coordinates, use of Solid Modeling Software, Computer Aided Design techniques, drafting and sketching of aircraft components in NX5.0. Class projects include: NX5.0 assembly, CNC machining, bottle rocket design, introduction to NASTRAN, Microsoft Excel spreadsheets and other relevant software. Prerequisite: AENG 0100

AENG 0242. AEROSPACE STRUCTURES I. 2nd Semester. Lect. 3, Lab. 0, 3 credits. This course introduces the concepts of stresses and strain in elastic members under tension, compression, shear, torsion and flexure, also covered are; combined stresses, Mohr's circles, thin pressure vessels, bending moment and shear force diagrams for beams, column buckling, strain energy. Prerequisite: MENG 0211.

AENG 0244. AERODYNAMICS I. 1st Semester. Lect. 3, Lab. 0, 3 credits. Introduction to the mechanics of fluids for aerospace applications, including the properties of fluids, hydrostatics, the equations of motion, dimensional analysis, potential flow, viscosity, boundary layers, and an introduction to aerodynamic forces. Prerequisites: MATH 0209, MENG 0211.

AENG 0267. INTRODUCTION TO FLIGHT MECHANICS. 1st Semester, Lect. 3, Lab. 0, 3 credits. This course covers un-accelerated and accelerated flight conditions including range, endurance, turning flight, takeoff and landing, legal and compliance issues and implications on aircraft design. Computer software will be utilized to demonstrate design implications. Prerequisite: AENG 0100, PHYS 0310, Corequisite MENG 0211.

AENG 0290. ENGINEERING ETHICS AND SOCIETY. 1st and 2nd Semester. Lect. 3, Lab. 0, 3 credits. This course provides the student with an understanding of the nature of engineering ethics in the societal context and discusses contemporary ethical issues in the engineering profession through illustrative case studies. Prerequisite: Advisors approval.

AENG 0317. AEROSPACE INSTRUMENTATION. 2nd Semester. Lect. 3, Lab. 3, 4 credits. Basic theory and principles of engineering and science as applied to measurement of parameters of interest in aerospace studies. Topics of equal importance include: data processing, error evaluation, calibration procedures, design of experiments, elementary circuit analysis and report writing. Prerequisites: MENG 0237, AENG 0244.

AENG 0340. FUNDAMENTALS OF SPACE MECHANICS. 1st Semester. Lect. 3, Lab. 0, 3 credits. Introduction to the dynamics of aerospace vehicles capable of attaining orbit and/or space travel. Topics include: descriptions of vehicle motion, Kepler's laws, orbital elements, ballistic trajectories and orbital flight dynamics. Prerequisites: MENG 0212.

AENG 0342. AEROSPACE STRUCTURES II. 2nd Semester, Lect. 3, Lab. 0, 3 credits. Introduction to aerospace structures and materials, elasticity, torsion, flexural loading, flexural shear and shear flow in thin walled sections. Prerequisite: AENG 0242, CSCI 0205 or CSCI 0229, Corequisite: AENG 342L.

AENG 342L. AEROSPACE STRUCTURES II LABORATORY. 2nd Semester. Lect. 0, Lab. 3, 1 credit. Weekly laboratory experiences to supplement the AENG 0342 lecture. Corequisite: AENG 0342.

AENG 0344. AERODYNAMICS II. 2nd Semester. Lect. 4, Lab. 0, 4 credits. Fundamental analysis of the basic equations of fluid mechanics as applied to aerodynamics. Topics covered include: potential flow, predictions of pressure distributions on airfoil surfaces, lift, drag and moment characteristics of airfoils in subsonic and supersonic flows and, lift and drag characteristics of wings in subsonic flows. Prerequisites: AENG 0244, CSCI 205 or CSCI 229 and MATH 0307.

AENG 344L AERODYNAMICS II LABORATORY. 2nd Semester. Lect. 0, Lab. 3, 1 credit. Weekly laboratory experiences to supplement the AENG 0344 lecture. Corequisite: AENG 0344

AENG 0346. FUNDAMENTALS OF PROPULSION. 1st Semester. Lect. 3, Lab. 0, 3 credits. Introduction to the fluid mechanics and thermodynamics required for the analysis and design of aerospace propulsion engines. Topics include: elementary propeller theory, thermodynamic analysis of various types of jet, rocket and other engines in aerospace use, effects of installation, velocity and atmospheric conditions on engine performance, noise, emissions, environmental considerations and appropriate standards. Prerequisites: MENG 0311, AENG 0344, Corequisite: AENG 346L.

AENG 346L. FUNDAMENTALS OF PROPULSION LABORATORY. 1st Semester. Lect. 0, Lab. 3, 1 credit. Weekly laboratory experiences to supplement the AENG 0346 lecture. Corequisite: AENG 0346.

AENG 0367. AEROSPACE DESIGN AND ANALYSIS. 1st Semester. Lect. 3, Lab. 0, 3 credits. This course covers techniques for estimating aircraft weight, power and wing loading and sizing to meet performance design requirements. Use of computer software for conceptual design and project design methods will be introduced. The course serves as a starting point for the senior flight vehicle design project. Prerequisites: AENG 0267 and junior standing.

AENG 0370. FUNDAMENTALS OF AIRCRAFT STABILITY AND CONTROL. 1st Semester. Lect. 3, Lab. 0, 3 credits. This course begins with a review of the aerodynamics of flight, then covers flight vehicles as rigid bodies considering their longitudinal, directional and lateral static stability. Preliminary sizing of horizontal and vertical stabilizing and control surfaces for various flight conditions. Dynamic stability is introduced. Prerequisite: AENG 0344.

AENG 0392. AEROSPACE RESEARCH AND DEVELOPMENT SEMINAR. 2nd Semester. Lect. 1, Lab. 0, 1 credit. Phases of aerospace engineering design project methodology, a quality

approach, and preliminary investigative efforts for the senior design project . Corequisite: AENG 0367.

AENG 0401. SENIOR SEMINAR. 2nd Semester. Lect. 1, Lab. 0, 1 credit. The senior seminar covers aspects of being a professional aerospace engineer and current engineering practice, through exposure to seminars presented by guest from government, academia and industry. Each student will write a technical paper and make a presentation on the topic. Prerequisite: Senior standing.

AENG 0417. ADVANCED INSTRUMENTATION DESIGN. On demand. Lect. 2, Lab. 3, 3 credits. Advanced theory and principles of sensors used in engineering and science to measure parameters in aerospace engineering. Topics include design and fabrication of sensors and a technical project requiring a written and oral presentation. Prerequisite: AENG 0317.

AENG 0418. COMPUTATIONAL SIMULATION AND ANALYSIS. On demand. Lect. 2, Lab. 3, 3 credits. Introduction to topics of special interest in the area of advanced computational simulation (computational fluid dynamics (CFD), flight simulation) and numerical analysis are topics covered in this course. Prerequisites: AENG 0344, CSCI 0205 or CSCI 0229 and senior standing.

AENG 0420. COMPUTER AIDED DESIGN AND FABRICATION. On demand. Lect. 1, Lab. 6, 3 credits. This course will cover the advanced use of the computer in the design, analysis and fabrication of aerospace vehicles, vehicle components and systems. Manufacturing processes for aerospace vehicles and systems will also be introduced. Prerequisites: AENG 0342, AENG 0344, CSCI 0205 or CSCI 0229 and senior standing.

AENG 0441. E.I.T. REVIEW. Lect. 2, Lab. 0, 0 credits. Review of the fundamentals of engineering science. Prerequisite: Junior standing.

AENG 0442. AEROSPACE STRUCTURES III. On demand. Lect. 3, Lab. 0, 3 credits. This course considers the advanced analysis of aerospace vehicle structural components, and an introduction to the fundamentals of the finite element solution of structural problems with a digital computer. Prerequisites: AENG 0342.

AENG 0443. INTRODUCTION TO AEROELASTICITY. On demand. Lect. 3, Lab. 0, 3 credits. This course covers the static aero-elastic phenomena of wing divergence and control. Free, forced and damped vibrations of aircraft structures and two dimensional flutter theory are also discussed. Prerequisites: AENG 0342, AENG 0344 and senior standing.

AENG 0444. AERODYNAMICS III. On demand. Lect. 3, Lab. 0, 3 credits. A continuation of AENG 0344 covering the fundamentals of compressible flow, normal and oblique shocks; subsonic, transonic and supersonic aerodynamics and design of supersonic aircraft. Prerequisites: AENG 0344.

AENG 0454. AIRCRAFT ENGINES. On demand. Lect. 3, Lab. 0, 3 credits. A continuation of AENG 0346 emphasizing more detailed analysis of the thermodynamics and aerodynamics of

aircraft propulsion systems. Aspects of design of engines will be covered. Prerequisites: AENG 0346.

AENG 0456. AEROSPACE ENGINE DESIGN AND ANALYSIS. On demand. Lect. 2, Lab. 3, 3 credits. Detailed internal aero-thermodynamic analysis of gas turbine power plants; topics may include engine component analysis and design, optimization of overall performance, an introduction to combustion, plasma dynamics and other contemporary propulsion issues. Prerequisites: AENG 0346.

AENG 0460. AEROSPACE CONTROLS. 2nd Semester. Lect. 3, Lab. 0, 3 credits. The principles and techniques of automatic controls are treated in this course. Topics include: examples of modern flight control systems in aerospace engineering, steady and transient performance of second order systems, root locus and frequency response analysis. Prerequisite: MATH 0307,AENG 0370. Corequisite: AENG 460L.

AENG 0460L. AEROSPACE CONTROLS LABORATORY. 2nd Semester. Lect. 0, Lab. 3, 1 credits. Weekly laboratory experiences to supplement the AENG 0460 lecture. Corequisite: AENG 0460. Corequisite or Prerequisite: AENG 0317.

AENG 0467. FLIGHT VEHICLE DESIGN. 2nd Semester. Lect. 4, Lab. 0, 4 credits. This course provides the capstone design experience, reviewing and applying the concepts learned from aerodynamics, structures, propulsion and stability and control to the design of an aircraft. Students will present both oral and written reports on their aircraft design. Prerequisites: AENG 0344, AENG 0342, AENG 0346, AENG 0370 and senior standing.

AENG 0468. SATELLITE DESIGN. On demand. Lect. 2, Lab. 3, 3 credits. Introduction to the design of small satellites, including aspects of orbital mechanics, power and propulsion, sensors, communication and the space environment. Group design projects will simulate some component of a practical satellite. All engineering disciplines are encouraged to take this course. Prerequisite: AENG 0340 or departmental approval.

AENG 0469. ADVANCED SPACE MECHANICS. On demand. Lect. 2, Lab. 3, 3 credits. This course investigates powered and un-powered orbital trajectories, methods used in advanced trajectory analysis and mission design, spacecraft stability and control and other space related topics. Prerequisite: AENG 0340 or departmental approval.

AENG 0472. COMPOSITE MATERIALS. 2nd Semester. Lect. 2, Lab. 3, 3 credits. Introduction to aerospace composite materials and structures: types of fibers used, thermosetting and thermoplastic matrix systems, mechanics of lamina and laminate. Students are introduced to manufacturing processes and testing through hands-on work. Prerequisites: AENG 0342.

AENG 0473. NONDESTRUCTIVE EVALUATION. 1st Semester, Lect. 2, Lab. 3, 3 credits. Introducing the importance of nondestructive evaluation (NDE) in engineering safety and reliability, principles and applications of liquid penetrant, ultrasonic, eddy current, magnetic particle, acoustic emissions and other emerging NDE techniques. Prerequisite: ENG 0317.

AENG 0477. INTRODUCTION TO HELICOPTER ANALYSIS AND DESIGN. On demand. Lect. 2, Lab. 3, 3 credits. This course introduces the function, structure and design of helicopter components and systems. Helicopter aerodynamics, performance and control during hover, vertical and forward flight are also discussed. Prerequisites: AENG 0344, AENG 0346, AENG 0370.

AENG 0478. INTRODUCTION TO MISSILE ANALYSIS AND DESIGN. On demand. Lect. 2, Lab. 3, 3 credits. This course covers the function and structure of the main missile components, missile aerodynamics, propulsion and stability and control. Missile navigation and guidance as well as other design considerations will be covered. Prerequisites: AENG 0344, AENG 0346, AENG 0370.

AENG 0491. AEROSPACE RESEARCH. On demand. Lect. 3, Lab. 0, 3 credits. This activity involves scientific study in an approved field offering the opportunity for independent, directed study on an aerospace engineering phenomena. Students are required to report all findings in an approved technical format. Prerequisite: Senior standing and departmental approval.

AENG 0492. AEROSPACE DESIGN PROJECT. On demand. 1st Semester. Lect. 2, Lab. 3, 3 credits. Comprehensive analysis and design of an aerospace product or system. Findings are to be presented throughout the semester in oral and written form as well as in a final written and formal presentation. Prerequisites: AENG0342, AENG 0344, AENG 0392 Departmental approval.

AENG 0493. SPECIAL TOPICS. On demand. Lect. 3, Lab. 0, 3 credits. Topics of special interest to the faculty and students. Prerequisites: Departmental approval.

AENG 0510. INTRODUCTION TO TURBULENCE AND CHAOS. On demand, Lect. 3, Lab. 0, 3 credits. This course provides students with basic definitions, concepts, principles and tools necessary to study turbulence. Topics include: Navier-Stokes equations and turbulence, theoretical, experimental and computational methods, chaos and nonlinearity. Prerequisites: Graduate standing and Instructor's permission.

CHEMICAL ENGINEERING (CENG)

Chemical Engineering is concerned with the economical conversion of basic raw materials into useful products for society. Included in industrial groups are petrochemical, synthetic fuels, metals, foods, synthetic materials and fibers, pharmaceutical, pulp and paper, fertilizers and coal tar products. Chemical engineers are concerned with chemical reactions and the separation of complex mixtures into their components. Chemical engineers rely on applied mathematics, physical chemistry, reaction kinetics, thermodynamics, and other engineering subjects, including computer technology and economics for their basic backgrounds. Chemical engineers are also particularly well qualified for the technological solution of environmental, ecological and biomedical problems.

The program provides a curriculum that begins with strong emphasis on fundamental science, mathematics and engineering sciences. The upper level curriculum builds on this foundation by imparting basic knowledge and applications of transport processes, thermodynamics and kinetic processes, process control and computer aided design. In addition,

emphasis is placed on the economic and societal implications of chemical engineering to increase awareness and social responsibility. The program also offers options in environmental engineering, biochemical engineering and pre-med. The program is accredited by EAC/ABET.

Mission Statement

To produce graduates of superior technical, professional and scientific background in chemical engineering who can perform effectively and embrace education as a lifelong endeavor.

Program Educational Objectives

Within a few years after graduation, our graduates will:

1. be successful practitioners in chemical and related industries, private practice or government.

2. be engaged in graduate studies or continuing education endeavors in chemical engineering or related fields.

3. be engaged in professional development commensurate with a career by participating in structured professional activities.

Environmental Option

A chemical engineering option in environmental engineering is available to those students who are interested in working in environmental areas after graduation. The curriculum for this option includes courses in environmental engineering and sciences.

Biochemical Engineering Option

Chemical engineering students who are interested in working in the biochemical engineering industry (such as pharmaceutical) can select the biochemical engineering option. The curriculum for this option includes courses in biology, biochemistry, biochemical engineering and microbiology to prepare students for careers in this industry.

Pre-med Option

Chemical Engineering students, who are interested in attending medical school, can select the pre-med option. The curriculum for this option includes courses in biology and the second part of organic chemistry to prepare students for medical school.

SUGGESTED CURRICULUM FOR CHEMICAL ENGINEERING MAJOR

Freshman Year

1st Semester			2nd Semester		
OREN 100	Orientation	1	OREN 101	Orientation	1
MATH 207	Calculus I	4	MATH 208	Calculus II	4

ENGL 101	English Comp.	3	ENGL 102	English Comp.	3
CHEM 231	Inorganic Chem. I	4	CHEM 232	Inorganic Chem. II	4
CHEM 233	Inorganic Chem. Lab. I	1	CHEM 234	Inorganic Chem. Lab. II	1
	Historical Analysis	3	CENG 110	Intro. Chem. Eng.	1
	Humanities	2	PHED	Physical Education	1
				Soc. Behavioral	3
		18			**18**

Sophomore Year

1st Semester			**2nd Semester**		
PHYS 310	Gen. Physics I	3	CENG 250	Chem. Eng. Thermo. I	3
PHYS 313	Gen. Physics Lab. I	1	CENG 220	Fluid Mechanics	3
CENG 210	Matl. & Eneg. Balances	4	PHYS 311	Gen. Physics II	3
CSCI 205/229	Fortran /C++ Prog.	3	CENG 290	Eng. Ethics & Society	3
MENG 237	Eng. Prob. & Stat.	3		Humanities	3
PHED	Physical Education	1		Soc. Behavioral	3
	Historical Analysis	3			
		18			**18**

Junior Year

1st Semester			**2nd Semester**		
CENG 310	Heat Transfer	3	CENG 380	Mass Transfer	3
CENG 350	Chem. Eng. Thermo. II	3	CENG 360	Chem. Reaction Eng.	3
CENG 320	Unit Operations Lab. I	1	CHEM 307	Quant. Analysis	3
CHEM 320	Organic Chem. I	3	CHEM 308	Quant. Analysis Lab	2
CHEM 322	Organic Chem. Lab. I	2	MATH 307	Differential Equations	3
MATH 209	Calculus III	4			**14**
PHYS 313	Gen. Physics Lab II	1			
		17			

Senior Year

1st Semester			**2nd Semester**		
CENG 430	Process Control & Instr.	3	CENG 440	Process Control Lab	1
CENG 470	Plant Design	4	EENG 380	Principles of Elec. Eng.	3
CENG 441	FE Review	0	EENG 380L	Elec. Eng. Lab	1
	Technical Elective	6	CENG 420	Unit Operations Lab. II	1
		13	CENG 490	Senior Design Project	3
				Technical Elective	6
					15

Total Degree Hours = 131

Courses for Undergraduates

CENG 0110. INTRODUCTION TO CHEMICAL ENGINEERING. 1st and 2nd Semester. Lect. 2, Lab 0, 1 credits. Introduction to chemical engineering principles & equipment. Calculations on simple industrial processes.

CENG 0210. MATERIAL AND ENERGY BALANCES. 1st and 2nd Semester. Lect. 4, Lab 0, 4 credits. Materials and Energy balances for engineering systems subjected to chemical and physical Transformations, Calculations on industrial processes. Prerequisites: CHEM 0231 and MATH 0207, CENG 0110.

CENG 0220. FLUID MECHANICS. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Flow of fluids, Fluid statics and dynamics; basic equations of fluid flow, flow of incompressible and compressible Fluids; flow past immersed bodies, agitation and mixing of fluids. Prerequisite: CENG 0210, MATH 208, PHYS 310.

CENG 0250. CHEMICAL ENGINEERING THERMODYNAMICS I. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Laws of Thermodynamics and their application to chemical engineering operations; power cycles; refrigeration and liquefaction. Prerequisite: CENG 0210, MATH 208.

CENG 0290. ENGINEERING, ETHICS AND SOCIETY. 1st and 2nd Semester. Lect 3, Lab 0, 3 credits. Engineering and moral complexity; moral reasoning; engineering as social experimentation; commitment to safety; workplace responsibility and rights; global issues; case studies; contemporary engineering issues. Prerequisite: Sophomore standing.

CENG 0310. HEAT TRANSFER. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Heat transfer by conduction, convection and radiation; heat exchanger equipment; evaporation. Prerequisite: CENG 0220.

CENG 0320. UNIT OPERATIONS LAB I. 1st and 2nd Semester. Lect. 0, Lab 3, 1 credit. Laboratory work in fluid flow and heat transfer. Prerequisite: MENG 0237, Corequisite: CENG 0310.

CENG 0350. CHEMICAL ENGINEERING THERMODYNAMICS II. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Thermodynamic properties of mixtures; phase equilibria; chemical reaction equilibria; thermodynamic analysis of processes. Prerequisite: CENG 0250.

CENG 0360. CHEMICAL REACTION ENGINEERING. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Introduction of the design of chemical reactors. Comparison of performance and economic evaluation of reactor types. Emphasis on homogeneous systems. Corequisite: CENG 0310.

CENG 0380. MASS TRANSFER. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Diffusion processes; design of mass-transfer devices; gas absorption; distillation; extraction; other

separation processes; simplified graphical and computer design methods. Prerequisite: CENG 0310. CENG 0350.

CENG 0400. INTRODUCTION TO BIOCHEMICAL ENGINEERING. 1st Semester. Lect. 3, Lab 0, 3 credits. Introduction to biochemical and microbiological applications to commercial and engineering processes, including fermentation, enzymology, ultra filtration, food and pharmaceutical processing and resulting waste treatment, enzyme kinetics, cell growth, energetic and mass transfer. Prerequisite: CENG 0360.

CENG 0410. CHEMICAL ENGINEERING TRANSPORT PHENOMENA. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Transport phenomena involving chemical reaction and interfacial phenomena. Prerequisite: CENG 0310.

CENG 0415. BIOSEPARATION ENGINEERING. 2nd Semester. Lect. 3, Lab 0, 3 credits. Recovery and purification of biologically produced proteins and chemicals. Basic principles and engineering design of various separation processes including chromatography, electrophoresis, extraction, crystallization, and membrane separation. Prerequisites: CENG 380

CENG 0420. UNIT OPERATIONS LABORATORY II. 1st and 2nd Semester. Lect. 0, Lab 3, 1 credit. Laboratory work in the fields of distillation; humidification; drying; gas absorption; filtration; reaction kinetics; thermodynamics, and other topics. Prerequisite: CENG 0380.

CENG 0430. PROCESS CONTROL AND INSTRUMENTATION. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Theoretical background and practical application of automatic controllers. Dynamics of measurement; automatic controllers; closed loop systems; system design. Special emphasis on chemical process applications. Prerequisite: CENG 0310, MATH 0307, CENG 0360.

CENG 0440. PROCESS CONTROL AND INSTRUMENTATION LAB. 1st and 2nd Semester. Lect. 0, Lab 3, 1 credit. Laboratory work in the field of process control and instrumentation. Prerequisite: CENG 0430.

CENG 0441. FE REVIEW. 1st and 2nd Semester. Lect. 2, Lab 0, 0 credit. Science, mathematics and engineering courses are reviewed to prepare students for the Fundamentals of Engineering Examination. Prerequisite: Junior Standing.

CENG 0450. ENVIRONMENTAL ENGINEERING FUNDAMENTALS. 1st Semester, Lect. 3, Lab 0, 3 credits. History and legal framework of environmental engineering. Chemistry and microbiology in environmental engineering. Water pollution, organic pollution, eutrophication, acidification and heavy metal pollution. Air pollution. Water and wastewater treatment technologies; anaerobic digestion and sludge treatment. Solid and hazardous waste treatment. Agricultural pollution and control. Prerequisite: Senior Standing

CENG 0460. INDUSTRIAL POLLUTION AND ABATEMENT PROCESSES. 2nd Semester. Lect. 3, Lab 0, 3 credits. Industrial air pollution problems and abatement techniques; sulfur

dioxide pollution from high temperature processes, treatment methods. Air particulates generation and removal processes. Treatment of radioactive waste from Uranium processing. Industrial wastewater treatment; coagulation and flocculation for particulate removal, advanced oxidation processes for organic removal. Mining and processing industry wastewater treatment; acid mine drainage from coal and hard rock mining and processing. Cyanide removal from wastewater. Land reclamation. Prerequisite: CENG 0450.

CENG 0470. CHEMICAL ENGINEERING PLANT DESIGN. 1st and 2nd Semester. Lect. 3, Lab 3, 4 credits. Equipment design, optimum design of chemical processes, economic analysis, decision making, plant layout, health and safety, engineering ethics, report writing. Prerequisite: CENG 0380.

CENG 0490. SENIOR DESIGN PROJECT. 1st and 2nd Semester. Lect. 3. Lab 0, 3 credits. Design or comprehensive analysis and development of an engineering product or process. The student is required to report his findings in an approved computer processed technical report and in an oral seminar. Prerequisite: CENG 0470.

CENG 0495. SPECIAL TOPICS. On demand. 1-4 credits. Topics of special interest to faculty and students. Prerequisite: Senior Standing.

SUGGESTED CURRICULUM FOR
CHEMICAL ENGINEERING MAJOR
Environmental Engineering Option

Freshman Year

1st Semester			2nd Semester		
OREN 100	Orientation	1	OREN 101	Orientation	1
MATH 207	Calculus I	4	MATH 208	Calculus II	4
ENGL 101	English Comp.	3	ENGL 102	English Comp.	3
CHEM 231	Inorganic Chem. I	4	CHEM 232	Inorganic Chem. II	4
CHEM 233	Inorganic Chem. Lab. I	1	CHEM 234	Inorganic Chem. Lab. II	1
	Historical Analysis	3	CENG 110	Intro. Chem. Eng.	1
	Humanities	2	PHED	Physical Education	1
				Soc. Behavioral	3
		18			**18**

Sophomore Year

1st Semester			2nd Semester		
PHYS 310	Gen. Physics I	3	CENG 250	Chem. Eng. Thermo. I	3
PHYS 313	Gen. Physics Lab. I	1	CENG 220	Fluid Mechanics	3
CENG 210	Matl. & Eneg. Balances	4	PHYS 311	Gen. Physics II	3
CSCI 205/229	Fotran /C++ Prog.	3	CENG 290	Eng. Ethics & Society	3

MENG 237	Eng. Prob. & Stat.	3		Humanities	3
PHED	Physical Education	1		Soc. Behavioral	3
	Historical Analysis	3			
		18			**18**

Junior Year

1st Semester			**2nd Semester**		
CENG 310	Heat Transfer	3	CENG 380	Mass Transfer	3
CENG 350	Chem. Eng. Thermo. II	3	CENG 360	Chem. Reaction Eng.	3
CENG 320	Unit Operations Lab. I	1	CHEM 307	Quant. Analysis	3
CHEM 320	Organic Chem. I	3	CHEM 308	Quant. Analysis Lab	2
CHEM 322	Organic Chem. Lab. I	2	MATH 307	Differential Equations	3
MATH 209	Calculus III	4			
PHYS 313	Gen. Physics Lab II	1			**14**
		17			

Senior Year

1st Semester			**2nd Semester**		
CENG 430	Process Control & Instr.	3	CENG 440	Process Control Lab	1
CENG 470	Plant Design	4	EENG 380	Principles of Elec. Eng.	3
CENG 441	FE Review	0	EENG 380L	Elec. Eng. Lab	1
EVSC 504	Environ. Science II	3	CENG 420	Unit Operations Lab. II	1
CENG 450	Env. Engin. Fundamentals	3	CENG 490	Senior Design Project	3
			CENG 460	Industr. Pollution Pro.	3
			CHEM 504	Instr. & Environ. Anal.	3
		13			**15**

Total Degree Hours = 131

SUGGESTED CURRICULUM FOR CHEMICAL ENGINEERING MAJOR Biochemical Engineering Option

Freshman Year

1st Semester			**2nd Semester**		
OREN 100	Orientation	1	OREN 101	Orientation	1
MATH 207	Calculus I	4	MATH 208	Calculus II	4
ENGL 101	English Comp.	3	ENGL 102	English Comp.	3
CHEM 231	Inorganic Chem. I	4	CHEM 232	Inorganic Chem. II	4
CHEM 233	Inorganic Chem. Lab. I	1	CHEM 234	Inorganic Chem. Lab. II	1
	Historical Analysis	3	CENG 110	Intro. Chem. Eng.	1
	Humanities	2	PHED	Physical Education	1

				Soc. Behavioral	3
		18			**18**

Sophomore Year

1st Semester			**2nd Semester**		
PHYS 310	Gen. Physics I	3	CENG 250	Chem. Eng. Thermo. I	3
PHYS 313	Gen. Physics Lab. I	1	CENG 220	Fluid Mechanics	3
CENG 210	Matl. & Eneg. Balances	4	PHYS 311	Gen. Physics II	3
CSCI 205/229	Fotran /C++ Prog.	3	CENG 290	Eng. Ethics & Society	3
MENG 237	Eng. Prob. & Stat.	3		Humanities	3
PHED	Physical Education	1		Soc. Behavioral	3
	Historical Analysis	3			
		18			**18**

Junior Year

1st Semester			**2nd Semester**		
CENG 310	Heat Transfer	3	CENG 380	Mass Transfer	3
CENG 350	Chem. Eng. Thermo. II	3	CENG 360	Chem. Reaction Eng.	3
CENG 320	Unit Operations Lab. I	1	BIOL 230	Cell & Gen. Biology	3
CHEM 320	Organic Chem. I	3	CHEM 307	Quant. Analysis	3
CHEM 322	Organic Chem. Lab. I	2	CHEM 308	Quant. Analysis Lab	2
MATH 209	Calculus III	4	MATH 307	Differential Equations	3
PHYS 313	Gen. Physics Lab II	1			
		17			**17**

Senior Year

1st Semester			**2nd Semester**		
CENG 430	Process Control & Instr.	3	CENG 440	Process Control Lab	1
CENG 470	Plant Design	4	CENG 490	Senior Design Project	3
CENG 441	FE Review	0	EENG 380	Principles of Elec. Eng.	3
CENG 400	Intro. Biochem. Eng.	3	EENG 380L	Elec. Eng. Lab	1
BIOL 301	Gen. Microbiology	3	CENG 420	Unit Operations Lab. II	1
			CENG 415	Bio-Separtion Eng.	3
		14			**12**

Total Degree Hours = 131

SUGGESTED CURRICULUM FOR
CHEMICAL ENGINEERING MAJOR

Pre-Med Option

Freshman Year

1st Semester			2nd Semester		
OREN 100	Orientation	1	OREN 101	Orientation	1
MATH 207	Calculus I	4	MATH 208	Calculus II	4
ENGL 101	English Comp.	3	ENGL 102	English Comp.	3
CHEM 231	Inorganic Chem. I	4	CHEM 232	Inorganic Chem. II	4
CHEM 233	Inorganic Chem. Lab. I	1	CHEM 234	Inorganic Chem. Lab. II	1
	Historical Analysis	3	CENG 110	Intro. Chem. Eng.	1
	Humanities	2	PHED	Physical Education	1
				Soc. Behavioral	3
		18			**18**

Sophomore Year

1st Semester			2nd Semester		
PHYS 310	Gen. Physics I	3	CENG 250	Chem. Eng. Thermo. I	3
PHYS 313	Gen. Physics Lab. I	1	CENG 220	Fluid Mechanics	3
CENG 210	Matl. & Eneg. Balances	4	PHYS 311	Gen. Physics II	3
CSCI 205/229	Fotran /C++ Prog.	3	CENG 290	Eng. Ethics & Society	3
MENG 237	Eng. Prob. & Stat.	3		Humanities	3
PHED	Physical Education	1		Soc. Behavioral	3
	Historical Analysis	3			
		18			**18**

Junior Year

1st Semester			2nd Semester		
CENG 310	Heat Transfer	3	CENG 380	Mass Transfer	3
CENG 350	Chem. Eng. Thermo. II	3	CENG 360	Chem. Reaction Eng.	3
CENG 320	Unit Operations Lab. I	1	CHEM 307	Quant. Analysis	3
CHEM 320	Organic Chem. I	3	CHEM 308	Quant. Analysis Lab	2
CHEM 322	Organic Chem. Lab. I	2	MATH 307	Differential Equations	3
MATH 209	Calculus III	4			
PHYS 313	Gen. Physics Lab II	1			**14**
		17			

Senior Year

1st Semester			2nd Semester		
CENG 430	Process Control & Instr.	3	CENG 440	Process Control Lab	1
CENG 470	Plant Design	4	EENG 380	Principles of Elec. Eng.	3
CENG 441	FE Review	0	EENG 380L	Elec. Eng. Lab	1

BIOL 120	Organismic Biology	3	CENG 420	Unit Operations Lab. II	1
BIOL 121	Organismic Biology Lab	1	CENG 490	Senior Design Project	3
BIOL 230	Cell & Gen. Biology	3	CHEM 321	Organic Chemistry II	3
BIOL 231	Cell & Gen. Biology Lab	1	CHEM 323	Organic Chemistry Lab II	2
		—		Eng. Elective	3
		15			**17**

Total Degree Hours = 135

ELECTRICAL ENGINEERING (EENG)

The mission of the Electrical Engineering Department is to prepare students to have strong technical, scientific, and professional skills and qualities with emphasis on design and commitments to life-long learning, basic and applied research, and public service. The Department also seeks to support faculty members to develop strong pedagogical and research skills to enhance the transfer of knowledge to students.

The Department of Electrical Engineering provides for its students a strong foundation in engineering science, mathematics, physical sciences, and engineering design. One of the main objectives is to have students reach competence through choices of technical electives and logical sequences of courses in the following thrust areas:

(a) Energy Systems, including: Power Systems, Control Systems, Power Electronics
(b) Microelectronic Systems, including: Electronic Materials, Opto-electronics, Integrated Circuits
(c) Communication Systems, including: Telecommunications, Digital Signal Processing, Wireless Systems and Eletromagnetics
(d) Computing Systems, including: Computer Aided Design, Computer Hardware, VLSI Design, Programming Languages

The Department's laboratory complex of essential facilities, include both general purpose and specialized laboratories. Laboratory courses are closely integrated with lecture courses. Students are therefore are able to gain invaluable experience with "hardware" and develop the skills, resources and knowledge essential for successful engineering practice.

The electrical engineering program offers courses in the areas of logic circuits, microprocessors, digital design, circuit theory, control systems, electronic circuits and applications, electromagnetic fields, digital signal processing and semiconductor devices. Elective courses permit concentration in selected areas.

Educational Objectives

The educational objectives of the electrical engineering department are derived to support the mission statements of the electrical engineering department, college of engineering, and the university. The Electrical Engineering Program Educational Objectives are as follows:

1. Successful practitioners in Electrical Engineering or related fields in industry, private practice or government.

2. Engaged in graduate studies or continuing education endeavors in engineering or related fields.

3. Engaged in professional and leadership development by participating in structured professional activities and community service.

SUGGESTED CURRICULUM FOR ELECTRICAL ENGINEERING MAJOR

Freshman Year

1st Semester		*Cr.*	*2ndSemester*		*Cr.*
OREN 0100	Orientation I	1	OREN 0101	Orientation II	1
ENGL 0101	English	3	ENGL 0102	English	3
CHEM 0231	General Chemistry	4	EENG 0221	Linear Net. & Circ.	3
CHEM 0233	Gen. Chemistry Lab	1	EENG 221L	Lin. Net. & Circ. Lab	1
MATH 0207	Calculus I (NSM)	4	MATH 0208	Calculus II	4
EENG 0192	Fresh. Engr. Des.	3	PHYS 0310	General Physics	3
	Physical Education	1	PHYS 0313	General Physics Lab	1
				Physical Education	1
		---			---
		17			17

Sophomore Year

1st Semester		*Cr.*	*2ndSemester*		*Cr.*
PHYS 0311	General Physics II	3	EENG 0260	Intro. to Logic Circ.	3
PHYS 0314	Gen. Physics II Lab	1	EENG 260L	Intro. to Logic Circ. Lab	1
EENG 0322	Linear Net. & Circ. II	3	MATH 0307	Differential Equations	3
EENG 322L	Linear Net. & Circ. II	1	EENG 0325	Electronics I	3
MATH 0209	Calculus III	4	EENG 325L	Electronics I Lab	1
ENGL 0203	Technical Writing	3	CSCI 0229	C^{++} Programming	3
MUSC 0102	Fund. of Music	2	HIST 0103	World Civilization I	3
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		17			17

Junior Year

1st Semester		*Cr.*	*2ndSemester*		*Cr.*
HIST 0104	World Civilization II	3	EENG 0324	Dig. Sig. Proc. (DSP)	3
MATH 0461	Engineering Math	3	EENG 0334	Electromag. Fields II	3

EENG 0333	Electromag. Fields I	3	EENG 0360	Microprocessors	3
EENG 0323	Signals & Systems	3	MENG 0211	Statics	3
EENG 0330	Electronics II	3		Tech. Elec. (Conc.)	3
EENG 330L	Electronics II Lab	1		Tech. Elec. Lab (Conc.)	1
		16			16

Senior Year

1st Semester		*Cr.*	*2ndSemester*		*Cr.*
EENG 0431	Linear Control Sys.	3	EENG 0441	EIT Review	1
EENG 431L	Lin. Control Sys. Lab	1	EENG 0492	Senior Design Project	3
EENG 493M	Linear & Matrix Alg.	3	MENG 0429	Engineering Econ.	2
MENG 0237	Engr. Prob. & Stat.	3		Tech. Elec. (Conc.)	3
EENG 0390	Engineering Ethics	3		Science Elec.	3
	PSPE	3		PSPE	3
	Tech. Elec. (Conc.)	3			
		19			15

Total Degree Hours 134

*PSPE - Political Science, Sociology, Psychology & Economics
*Humanities/Creative Elective - 2hrs Music (Band or Choir Not Allowed)

Electives

The students are required to choose one of the following four concentrations and complete its requirements: (1) Integrated Circuits/VLSI Design, (2) Communication Systems, (3) Power Systems, (4) Control Systems. Each concentration has ten credits of required course work (three lecture courses and one Lab. course)

Integrated Circuits/VLSI Design Concentration:

EENG 0413	Semiconductor Devices	3
EENG 413L	Semiconductor Lab	1
EENG 0460	Digital Design	3
EENG 0585	VLSI Design	3
EENG 0586	CMOS Integrated Circuits	3
EENG 0493o	Fundamentals of Microsystems and Nanotechnology	3

Communication Systems Concentration:

EENG 0537	Random Variables and Stochastic Processes	3
EENG 0538	Communication Theory	3

EENG 538L	Communication Lab.	1
EENG 0539	Wireless Communication	3
EENG 0558	RF Transmitter & Receiver Design	3
EENG 0543	Digital Communications	3

Power Systems Concentration:

EENG 0423	Energy Conversion	3
EENG 423L	Energy Conversion Lab.	1
EENG 0540	Power System Analysis	3
EENG 0541	Power Systems Protection and Stability	3
EENG 0587	Power Electronics	3

Control Systems Concentration:

EENG 0522	System Analysis	3
EENG 493J	Optimization for Engineers	3
EENG 493P	Modeling and Simulation	3
EENG 493/590	Digital Control	3

No free technical electives allowed.

Courses for Undergraduates

EENG 0192. FRESHMAN ENGR. DESIGN. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Introduction to Computer Aided Design Tools. Creation of drawings and electrical/electronic diagrams using computers/workstations. Introduction to word processing and merging of text and drawings to create technical reports. Introduction to circuit simulation techniques. Introduction to mathematical programs for solving circuit equations and graphing results.

EENG 0221. LINEAR NETWORK AND CIRCUITS I. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Kirchhoff's Laws, nodal analysis, mesh analysis, superposition, source transformation, RL and RC circuits, time constants, transient analysis, unit step function, combined steady state and transient analysis, analysis of RLC circuits. Introduction to AC Analysis. Prerequisites: MATH 0207, EENG 0192, and Corequisite: EENG 221L.

EENG 221L. EENG LABORATORY I. 1st and 2nd Semester. Lect. 0, Lab 3, 1 credit. Laboratory experiments to supplement EENG 0221. Prerequisite: EENG 0192, and MATH 0207. Corequisite: EENG 0221.

EENG 0260. INTRODUCTION TO LOGIC CIRCUITS. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. An introduction to the analysis and design of logic circuits. Topics include: Number systems, Boolean Algebra, Boolean functions, truth tables, Karnaugh maps, Gates, flip-flops, combinational and sequential logic circuits, design methods and verification, and an introduction to CAD tools for logic design. Prerequisite: EENG 0192. Corequisite: EENG 260L.

EENG 260L. INTRODUCTION TO LOGIC CIRCUITS LABORATORY. 1st and 2nd Semester. Lect. 0, Lab 3, 1 credit. Laboratory and design experiences to accompany EENG 0260. Prerequisite: EENG 0292. Corequiste: EENG 0260.

EENG 0261. MICROPROCESSOR PROGRAMMING APPLICATION DEVELOPMENT FOR ENGINEERS. 1st and 2nd Semesters, Lect. 3, 3 credits. Overview of microprocessor machine-level programming design and development using C, assembly-language programming, and hardware interfaces. Introduction to algorithm design, analysis and experimentation with application to engineering problems. Prerequisite: EENG 0260.

EENG 0290. ENGINEERING, ETHICS AND SOCIETY. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Engineering and moral complexity; moral reasoning; engineering as social experimentation; commitment to safety; workplace responsibilities and rights; global issues; case studies; contemporary engineering issues. Prerequisite: Sophomore Standing.

EENG 0322. LINEAR NETWORK AND CIRCUITS II. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Current and voltage relationships for circuits with a.c. excitation sources. Circuit laws and network theorems using frequency domain techniques. Introduction of power systems such as multi-phase networks and transformers. Prerequisites: MATH 0208, EENG 0221, EENG 221L.

EENG 0323. SIGNALS AND SYSTEMS. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Signal analysis. Time domain analysis of electrical/electronic circuits. Fourier and Laplace Transforms and selected applications in circuit and system theory. Prerequisites: EENG 0322, and MATH 0307. Corequisite: EENG 0325.

EENG 0324. DIGITAL SIGNAL PROCESSING. 2nd Semester. Lect. 3, Lab 0, 3 credits. Discrete-time signals and systems; Z-Transforms; Discrete Fourier Transforms; Digital Filter Design techniques; Computation of Discrete Fourier Transforms. Prerequisites: EENG 0260, EENG 260lL, and EENG 0323.

EENG 0325. ELECTRONICS I. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Introduction to basic semi-conductor devices, including JFETS, MOSFETS, BIPOLAR transistors. Analysis of basic amplifier and selected switching circuits. Design of Microelectronic components and circuits. Prerequisites: EENG 0221, EENG 221L. Corequisite: EENG 0322, 325L.

EENG 325L. ELECTRONICS LAB I. 1st and 2nd Semester. Lect. 0, Lab 3, 1 credit. Experimental study of electronic circuit fundamentals with emphasis on device characteristics, basic amplifiers, and switching applications. Design of electronic circuits. Corequisite: EENG 0325, and EENG 0322.

EENG 0330. ELECTRONICS II. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Design and analysis of electronic circuits and devices. Semiconductor processes, discrete devices and integrated circuits. Equivalent circuits and modeling, Linear and digital integrated circuit applications. Prerequisite: EENG 0322. EENG 0325. Corequisite EENG 330L.

EENG 330L ELECTRONICS LAB II. 1st and 2nd Semester. Lect. 0, Lab 3, 1 credit. Experimental study of electronic circuit design and analysis. Conventional and unconventional solutions to design and analysis problems. Corequisite: EENG 0330.

EENG 0333. ELECTROMAGNETIC FIELDS I. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Continued study of vector calculus, electrostatics and electromagnetics. Maxwell's equation. Introduction to electromagnetic waves, transmission lines, and radiation from antennas. Prerequisites EENG 0322, MATH 0209, and PHYS 0311.

EENG. 0334. ELECTROMAGNETIC FIELDS II. 1st and 2nd Semester and Summer. Lect 3, Lab 0, 3 credits. Transient and steady state behavior of transmission lines; wave guides, antennas, propagation, noise microwave sources, system design. Prerequisite: EENG 0322, EENG 0333, and MATH 0307.

EENG 0360. MICROPROCESSORS. 1st and 2nd Semester. Lect. 2, Lab 3, 3 credits. Operation and applications of microprocessors including system level organization, analysis of specific processors and software and hardware interface design. Microprocessor development systems including in-circuit emulation, programming using higher-level languages, and implementation of application algorithms. Laboratory work is required. Prerequisites: EENG 0221, EENG 221L, EENG 260, EENG 260L, and CSCI 0229.

EENG 0380. PRINCIPLES OF ELECTRICAL ENGINEERING. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. (For non EENG majors only). Circuit analysis; network theorems, electronic devices and engineering applications, electromagnetics, digital devices, electromechanical systems, electronic circuits, instruments and instrumentation systems. Prerequisites: PHYS 0311, MATH 0208. Corequisite: EENG 380L.

EENG 380L. ELECTRICAL ENGINEERING LABORATORY. 1st and 2nd Semester. Lect. 0, Lab 3, 1 credit. Laboratory experiments to accompany EENG 0380. Corequsite: EENG 0380.

EENG 0390. ENGINEERING, ETHICS AND SOCIETY. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Engineering and moral complexity; moral reasoning; engineering as social experimentation; commitment to safety; workplace responsibilities and rights; global issues; case studies; contemporary engineering issues. Prerequisite: Sophomore Standing.

EENG 0413. SEMICONDUCTOR DEVICES. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Physics of semiconductor devices. Properties of materials and devices used in electrical engineering. Theory of operation of semiconductor devices to include semiconductor fundamentals, PN junction diodes, bipolar junction transistor, and field-effect transistors. Prerequisites: EENG 0325, EENG 0333 and PHYS 0311.

EENG 0413L. SEMICONDUCTOR LABORATORY. 1st and 2nd Semester. Lect. 0, Lab 3, 1 credit. Laboratory and design experience to accompany EENG 0413. Prerequisite: EENG 0325 and EENG 0413.

EENG 0423. ENERGY CONVERSION. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Various types of energies and their convertibility. The electromagnetic field; forces in EM fields; induced electromagnetic forces and rotating magnetic fields; the DC Machine, generator and motor operation and performance characteristics. Single phase and three phase transformers; the Induction Machine; three phase and single phase induction motors. Three phase synchronous machine-performance and operating characteristics; parallel operation of three phase alternators. Prerequisite: EENG 0333.

EENG 423L. ENERGY CONVERSION LABORATORY. 1st and 2nd Semester. Lect. 0, Lab 3, 1 credit. Experimental study of conventional electromechanical energy conversion devices and transformers. Prerequisite or Corequisite: EENG 0423.

EENG 0425. COMPUTER NETWORK DESIGN AND ANALYSIS. 1st Semester. Lect. 3. Lab 0, 3 credits. Introduces the fundamental concepts and principles of network design and analysis, and introduces computer network architecture using a layered approach. Emphasis on network design and telecommunication traffic engineering, flow and congestion control, switching and routing, techniques for evaluating network performance, quality of service, and application level protocols such as RTP, peer-to-peer networks, and overlay networks. Prerequisite: Basic knowledge about computer networks and probability, or Permission of instructor.

EENG 0427. INTERNET SECURITY FOR ELECTRICAL ENGINEERS. Lect. 3. Lab 0, 3 credits. Provides the foundation for understanding the key issues associated with symmetric and public-key cryptographic algorithms and design principles. It covers important network security tools and applications relating to electronic mail security, Internet protocol security and web security. Examine at system level internet security issues including the threat of and countermeasure for intruders and viruses and the use of firewalls and trusted systems needed to reach and maintain a state of acceptable security in networked systems. Focuses on the concepts and methods associated with planning, designing, implementing, managing and auditing security at all levels and on all system platforms. Prerequisite: EENG 425, and Permission of instructor.

EENG 0431. CONTROL SYSTEMS. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Fundamental principles of open loop and closed loop automatic control systems. System functions. Analysis of closed loop control systems and their transient and steady state response; stability and design of stabilizing controllers. Bode plots, polar plots, root locus and compensation network methods. State variable analysis. Prerequisite: EENG 0323.

EENG 431L. CONTROL SYSTEMS LABORATORY. 1st and 2nd Semester. Lect. 0, Lab 3, 1 credit. Experimental study of feedback control systems and typical components. Study of open loop and closed loop frequency response. Laboratory studies include use of computer. Prerequisite or Corequisite: EENG 0431.

EENG 0432. DIGITAL CONTROL. 1st and 2nd Semesters, Lect. 3, 3 credits. Introduction to analysis and design of discrete data control systems using frequency domain techniques. Real-time digital filtering techniques; application of digital computers in closed loop feedback systems. Prerequisite: Graduate Student.

EENG 0434. DIGITAL IMAGE PROCESSING. Principal methods for coding, digitizing, storing, processing, and displaying images. Computational algorithm procedures for image operations which include image enhancement, restoration, coding, and segmentation. Prerequisite: EENG 0261; MENG 0237.

EENG 0441. FE REVIEW. 1st and 2nd Semester. Lect. 2, Lab 0, 0 credit. Review of the fundamentals of engineering science. Prerequisite: Junior Standing.

EENG 0451. INSTRUMENTATION. 1st Semester. Lect. 2, Lab 3, 3 credits. Fundamental principles of design of instrumentation to measure and control physical quantities. Electromechanical transducers. Signal analysis, processing and transmission. Display System. Prerequisites: EENG 0323, EENG 0330 and EENG 330L.

EENG 0460. DIGITAL DESIGN. 1st Semester. Lect. 3, Lab 0, 3 credits. Design of digital logic circuits. Topics include: Logic gates and flip-flop level design using standard integrated circuit chips, programmable logic array design, system level design using a hardware description language (VHDL), computer aided design tools used to create and verify designs, fault diagnosis and testing. Prerequisite: EENG 0322, and EENG 0360.

EENG 461. Embedded System Design and Application. 1st and 2nd Semesters. Lect 3, 3 credits. Design of embedded systems including basic hardware and software analysis, peripheral interfaces are emphasized. Real-time control of physical systems and real-time data processing systems are analyzed. In depth analysis of Input/Output (I/O) devices, busses, and processors for embedded systems. Prerequisites: EENG 360, EENG 0260, CSCI 0229

EENG 0491. UNDERGRADUATE RESEARCH. 1st and 2nd Semester . 3 credits. Independent research study of a topic of interest in the field of electrical engineering. The student is required to report his/her finding in an approved typewritten technical report. Prerequisite: Senior Standing.

EENG 0492. ENGINEERING ANALYSIS AND DESIGN. 1st and 2nd Semester. 3 credits. Comprehensive analysis and development of an engineering product or process. The student is required to report his/her finding in an approved typewritten technical report. Prerequisite: EENG 0323, EENG 0330, EENG 0334, EENG 0360, MENG 0237, and MENG 0211.

EENG 0493. SPECIAL TOPICS. 1st and 2nd Semester. 1-4 credits. Topics of special interest to faculty and students. Prerequisite: Approval of Instructor and Department Head.

EENG 493E. RANDOM VARIABLES AND STOCHASTIC PROCESSES. 1st Semester. Lect. 3, 3 credits. Events, probability and random variables; Distribution functions; Density functions; Correlation functions; Spectral density; Linear system analysis; Markov chains; Gaussian and Poisson processes; Stochastic processes; applications. Prerequisite: EENG 0323, EENG 0324 senior standing or permission of instructor.

EENG 493F. COMMUNICATION THEORY. 1st Semester. Lect.3, Lab 0, 3 credits. Signal analysis, Random signals, Matched receivers; Analog communication; AM, FM; Digital

communication; Multiplexing; Information theory, and applications; Prerequisite: EENG 0323, EENG 0324, senior standing or permission of instructor. Corequisite: EENG 493G.

EENG 493G. COMMUNICATION LAB. 1st Semester. Lect. 0, Lab 1, 1 credit. This laboratory provides experiments involving communication circuits and systems that are covered in EENG 493F, Communication Theory. Corequisite: EENG 493F.

EENG 493H. WIRELESS COMMUNICATIONS. 2nd Semester. Lect. 3, Lab 0, 3 credits. This course covers fundamental theory and design of high capacity wireless communication systems. Topics include trunking, propagation, frequency reuse, modulation, coding, and equalization. Emerging cellular and PCS systems are analyzed. Prerequisites: EENG 0324, EENG 493E, EENG 493F, senior standing or permission of instructor.

EENG 493J. MATHEMATICAL OPTIMIZATION FOR ENGINEERS. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Optimization is central to any problem involving decision making, whether in engineering or in economics. Optimization theory and methods deal with selecting the best alternative in the sense of the given objective function. While the mathematics of optimization has been studied for about a century, several related recent developments have stimulated new interest in the field. In this course, the topics of unconstrained optimization, linear programming, quadratic programming and convex optimization including semidefinite programming will be covered. The prerequisite courses are MATH 307 and EENG 493M.

EENG 493M. MATRIX AND LINEAR ALGEBRA. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. As the mathematical discipline for studying the vector space and linear transformation, linear algebra forms the basis for much of modern mathematics — theoretical, applied, and computational. In particular, linear algebra plays an important role in electrical engineering. In this course, the topics of matrix algebra, vector spaces, linear transformation, eigenvalues and eigenvectors, and their applications in solving the systems of differential equations will be covered. The prerequisite courses are MATH 208 and MATH 307.

EENG 493P. MATHEMATICAL MODELING AND SIMULATION. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. A mathematical model is an abstract model that uses mathematical language to describe the behavior of a system, and mathematical modeling is the link between mathematics and the rest of the world. The methods of mathematical modeling and simulation are used widely in sciences and engineering disciplines. In this course, the topics of dynamic models, probability models, optimization models and the simulation of dynamic models will be covered. The prerequisite courses are MATH 307 and EENG 493M.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

*Note: The following courses are offered primarily for graduate students. Seniors may, however, choose 500 level courses as technical electives.

EENG 0521. COMPLEX ANALYSIS FOR ELECTRICAL ENGINEERING. 1st and 2nd Semesters. Lect. 3, 3 credits. Introduction to basic formulas and procedures of complex analysis for one variable with emphasis on the applications of complex variables in electrical engineering.

Topics include complex numbers, analytic functions and series representations for analytic functions, complex integration including contour integrals and Cauchy integral theorem, residue theory, conformal mapping and complex potential and particularly their applications in electrostatics. Prerequisite: Graduate Student; MATH 0209

EENG 0522. SYSTEMS ANALYSIS. 2nd Semester. Lect. 3, Lab 0, 3 credits. The linear graph and matrix approach to general linear systems having wo-terminal and multi terminal components. State variable formulations. Prerequisite: EENG 0431 or Permission of Instructor.

EENG 0537. RANDOM VARIABLES AND STOCHASTIC PROCESSES. 1st Semester. Lect. 3, 3 credits. Events, probability and random variables; Distribution functions; Density functions; Correlation functions; Spectral density; Linear system analysis; Markov chains; Gaussian and Poisson processes; Stochastic processes; applications. Prerequisite: EENG 0323, EENG 0324 or Permission of Instructor.

EENG 0538. COMMUNICATION THEORY. 1st Semester. Lect. 3, Lab 0, 3 credits. Signal analysis, Random signals, Matched receivers; Analog communication; AM, FM; Digital communication; Multiplexing; Information theory, and applications; Prerequisite: EENG 0323. EENG 0324. Corequisite: EENG 538L

EENG 538L. COMMUNICATION LAB. 1st Semester. Lect. 0, Lab 1, 1 credit. This laboratory provides experiments involving communication circuits and systems that are covered in EENG 0538 Communication Theory. Corequisite: EENG 0538.

EENG 0539. WIRELESS COMMUNICATIONS. 2nd Semester. Lect. 3, Lab 0, 3 credits. This course covers fundamental theory and design of high capacity wireless communication systems. Topics include trunking, propagation, frequency reuse, modulation, coding, and equalization. Emerging cellular and PCS systems are analyzed. Prerequisites: EENG 0324, EENG 0537, EENG 0538.

EENG 0540. POWER SYSTEM ANALYSIS. 1st Semester. Lect. 3, Lab 0, 3 credits. Balanced Power Systems at Steady state conditions. Transmission line calculations; Systems analysis using bus admittance and impedance matrices. Power-flow analysis, Economic operation. Prerequisite: EENG 0423 or Permission of Instructor.

EENG 0541. POWER SYSTEMS PROTECTION AND STABILITY. 2nd Semester. Lect 3, Lab 0, 3 credits. Unbalanced power systems at steady state conditions. Fault analysis, power transfer and system stability; Insulations. Protective systems; Relay coordination. Prerequisite: EENG 0423 or Permission of Instructor.

EENG 0542. RENEWABLE ENERGY. 1st and 2nd Semesters, Lect. 3, 3 credits. Overview and introduction to most significant renewable energy resources and technologies such as solar, wind, biomass, geothermal, Hydroelectric, and Fuel cell. Course participants will be able to recognize, understand and evaluate the different renewable energy resources available today and in the future. The main topics will include: fundamentals of energy generation and conversion, basic analysis and calculations regarding energy generation, conversion and efficiency, operational

consideration, emerging trends, environmental impact, and economic issues. In addition, energy storage techniques such as batteries, ultracapacitor, flywheel, distributed generation and interconnection issues are also discussed. Prerequisite: EENG 0423.

EENG 0546. POWER SYSTEM PLANNING. 2nd Semester. Lect. 3, Lab 0, 3 credits. Design and layout of generation stations, switch yards and transmission lines. Prerequisites: Permission of Instructor.

EENG 0558. RF TRANSMITTER & RECEIVER DESIGN. 2nd Semester. Lect. 3, Lab 0, 3 credits. RF electronic circuits, analysis and design; Oscillators; Amplifiers; Coupling circuits; Mixers; IF Amplifiers; Demodulators; Microwave Systems, and multiplexing . Prerequisite: EENG 0330 and EENG 0334.

EENG 0560. ELECTRICAL PROPERTIES OF MATERIALS. 1st Semester. Lect. 3, Lab 0, 3 credits. Crystal structure; Bravais lattice, energy bands; Metals, Nonmetals, conduction processes, effective mass, scattering mechanisms, continuity equation and junction theory; Field-material interaction, dielectric losses, magnetic permeability; Energy converting properties of solids. Prerequisite: EENG 0413, PHYS 0402 or Permission of Instructor.

EENG 0562. PRINCIPLES OF SONAR. 1st and 2nd Semesters. Lect. 3, 3 credits. Basic concepts of sonar systems including: acoustic propagation, transducers and projectors, target strength, reverberation, beam-steering, beam-forming, beam-patterns, synthetic aperture sonar. Graduate Student; Math 0209.

EENG 0563. INTRODUCTION TO OPTICS. 1st and 2nd Semesters. Lect. 3, 3 credits. Introduction to the fundamental principles and components of optics including Electromagnetic wave theory-Maxwell's equations, planes waves, energy and power flow. Topics include geometrical optics with applications to optical systems, optical fibers and resonators. Quantum theory of light and quantum electronics, lightwave fundamentals, integrated optics and optical fiber waveguides, optical sources and amplifiers, optical fiber channels, light detectors, modulation, and noise. Wave propagation in layered media with applications to lasers and communication systems. Prerequisite: Graduate Student; MATH 0209.

EENG 0568. MICROWAVE MEASUREMENTS. 1st Semester. Lect. 2, Lab 3, 3 credits. Prerequisite: EENG 0334 or Permission of Instructor.

EENG 0570. ELECTROMAGNETIC THEORY. 1st Semester. Lect. 3, Lab 0, 3 credits. Static electric fields, Static magnetic fields, Boundary conditions; Boundary value problems, Laplace equation; Maxwell's equations; Plane waves; wave guides; Cavities; special topics; Cavities, plasmas. Prerequisite: EENG 0334 or Permission of Instructor.

EENG 0572. ANTENNAS AND PROPAGATION. 1st Semester. Lect. 3, Lab 0, 3 credits. Introduction; Typical Antenna concepts, gain, directivity, radiation pattern; Wave polarization, Pointing vector; Sources, point source, dipoles, loops, isotropic source and radiated fields; Antenna array, loop and helical antennas; Parabolic reflector antennas. Prerequisite: EENG 0334 or Permission of Instructor.

EENG 0574. ADVANCED ELECTRONICS. Summer. Lect. 3, Lab 0, 3 credits. Nonlinear electronic systems, advanced analysis and design techniques, applications, wave shaping; switching comparators, bistable systems; oscillators; modulation processes, Signal processing; noise reduction and communication systems. Prerequisite: EENG 0330 or Permission of Instructor.

EENG 0578. ELECTRONIC DEVICE DESIGN AND FABRICATION. 1st Semester. Lect. 3, Lab 0, 3 credits. Monolithic IC technology; Bipolar and MOSFET processes and structures; Layout design, fabrication, applications. prerequisite: EENG 0413 or Permission of Instructor.

EENG 0579. DIGITAL CONTROL. 1st and 2nd Semesters, Lect. 3, 3 credits. Introduction to analysis and design of discrete data control systems using frequency domain techniques. Real-time digital filtering techniques and application of digital computers in closed loop feedback systems. Project included. Prerequisite: Graduate Student; EENG 0431.

EENG 0580. ADVANCED CONTROL THEORY. 2nd Semester. Lect. 3, Lab 0, 3 credits. Classical techniques; State variables; Optimization; Deterministic and Stochastic systems; Noise measurement and filtering; Simulation; Introduction to game theory. Prerequisite: EENG 0431 or Permission of instructor.

EENG 0584. ADVANCED DIGITAL DESIGN. 2nd Semester. Lect. 3, Lab 0, 3 credits. Advanced design of digital logic circuits. Topics include: gate and flip-flop level design using standard integrated circuit chips, programmable logic array design, system level design using a hardware description language (VHDL), computer aided design tools used to create and verify designs, fault diagnosis and testing.

EENG 0585. VLSI DESIGN. 1st Semester. 3 credits. Introduction to VLSI layout. The switch and the inverter. Logic design. Stick diagrams. Design-fabrication interface. Delay and power calculations. Memory systems, Static RAM, Dynamic RAM, ROMs. Structured design and Test. Perquisites: EENG 0413.

EENG 0586. CMOS INTEGRATED CIRCUITS. 2nd Semester. Lect. 3, Lab 0, 3 credits. MOS Transistor Models. Feedback and sensitivity in Analog Integrated Circuits. Operational Amplifier Design. Continuous-Time and Sampled-Data Active Filters. D/A and A/D converters. Low-power, low-voltage analog integrated circuits. Perquisites: EENG 0413, EENG 413L.

EENG 0587. POWER ELECTRONICS. 2nd Semester. Lect. 3, Lab 0, 3 credits. Polyphase power rectifiers and inverters. Solid-state drivers for rotating machines. Characteristics of high-power solid-state components. Design of switching power supplies. Prerequisites: EENG 0423, EENG 423L, EENG 0330. EENG 330L.

EENG 0590. SPECIAL TOPICS. 1st and 2nd Semester. 1-4 credits. Topics of special interest of the faculty and the students. Offered by specific Course Reference Numbers and title. Prerequisite: Permission of Instructor.

EENG 0592. ENGINEERING PROJECT MANAGEMENT. 1st and 2nd Semesters, Lect. 3, 3 credits. Management of engineering decision-making processes and practices. Introduction of methods for organizing, coordinating, and controlling resources to minimize risk and conflict to maintain budgets and schedules. Evaluation of competing alternatives, organization of the project, scheduling and allocation of tasks and resources, and the role of management over time. Monitoring, controlling, evaluating and terminating the project. Prerequisite: Graduate Student; MATH 0209.

EENG 0594. ENGINEERING ECONOMICS ANALYSIS. 1st and 2nd Semesters. Lect. 3, 3 credits. Introduce fundamental concepts in finance and their application with emphasis on how to evaluate investment and financing opportunities in a corporation. Examine investments, capital structure choice, financial models, and issues in corporate control. Prerequisite: Graduate Student; MATH 0209.

EENG 0595. RELIABILITY AND MAINTAINABILITY. 1st and 2nd Semesters. Lect. 3, 3 credits. Introduction to the reliability analysis of components, reliability and risk analysis of the systems, with a necessary introduction of the relevant knowledge about probability and statistical analysis. Topics cover the fundamentals of probability and statistics relevant to reliability analysis, including hypothesis testing, confidence interval, regression analysis and Bayesian methods, the reliability analysis of components, reliability and risk analysis of the systems. Prerequisite: Graduate Student; EENG 493E or EENG 0537.

EENG 0596. COMPUTER SOFTWARE SYSTEMS ENGINEERING. 1st and 2nd Semesters. Lect. 3, 3 credits. Introduction to requirements, specification, design, implementation, testing, and verification of large software systems. Study and use of software engineering methodologies include project planning and management, development tools, database design, software architecture/top-level design, user interface design, implementation, independent and formal testing, and team programming. Prerequisite: Graduate Student; C++ and/or Java Programming.

EENG 0599. ADVANCED DIGITAL SIGNAL PROCESSING. Lect. 3. Lab 0, 3 credits. Theory and application of signal processing concepts using digital techniques, difference equations, Z-transform theory, digital-filter design, discrete-time signals and systems with a emphasis on the frequency domain design. Examine the description of digital filtering and discrete spectrum analysis, and the relationship to analog signal processing, fast Fourier transform, quantization effects, and discrete estimation., Applications in digital filtering, signal processing, data analysis and smoothing, image processing, data compression, computer vision, pattern recognition and VLSI based DSP design. Prerequisite: Graduate Student; MATH 0209.

Courses taught under this umbrella include:

EENG 590J. ADVANCED SOLID STATE DEVICES. 1st Semester. Lect. 3, Lab 0, 3 credits. Review of Si and GaAs devices, fabrication processes, analysis of P-N junctions, heterojunctions and metal-semiconductor contacts, bipolar transistors, field effect transistors, power device structures and microwave diodes. Prerequisite: EENG 0413 or Permission of Instructor

EENG 590L. SEMICONDUCTOR MEASUREMENTS. 2nd Semester. Lect. 2, Lab 3, 3 credits. Chemical and physical characterization techniques; electrical measurement techniques; measurement of resistivity, carrier concentration, lifetimes, junction and contact parameters, MOS characteristics, deep-level states. Prerequisite: EENG 0413 or Permission of Instructor.

EENG 590P ADVANCED VLSI DESIGN. 2nd Semester. 3 credits. State of the art of CMOS technology. Arithmetic building blocks including adders, multipliers, and shifters. Designing memory and array structures, logic and system optimization. Timing issues, interconnect, signal integrity, power distribution and consumption. Prerequisite: EENG 0585

EENG 0642. TRANSIENT PHENOMENA IN POWER SYSTEMS. 2nd Semester. Lect. 3, Lab 0, 3 credits. Phenomenon of Electrical transients, Laplace transform and Duhamel's Integral. Switching transients, Electromagnetic shielding. Modeling of devices under transient conditions. Transient network analyzer, Electromagnetic Transient Program (EMTP). Protection of systems and equipment against transient over voltages. Prerequisite: EENG 0540 or Permission of Instructor.

EENG 0690. PROJECTS Graduate projects 1-4 credits.

EENG 0700. THESIS 6 credits.

EENG 0752. CONTINUOUS REGISTRATION 0 credit.

EENG 0754 CANDIDATE FOR DEGREE ONLY 0 credit.

MECHANICAL ENGINEERING (MENG)

Mechanical Engineering is concerned with the production and utilization of power and the design, construction, and operation of machines and systems. Mechanical engineers are associated with all branches of industry and with all activities involving design, manufacture, research and development, operation and maintenance, or sales. Their functions range from highly technical and analytical design to broad industrial and management executive responsibilities where technical competence is essential to sound judgment. Mechanical engineering products include industrial machinery, power plants, internal combustion engines, automotive systems, steam and gas turbines, jets, rockets, automation and controls, material handling equipment, heating, ventilating and refrigeration plants and equipment, hydraulic machinery, medical devices, and many others.

The energy area deals with the use of prime movers for the generation, conversion, and utilization of energy. The design area is concerned with the design, development, and analysis of products, machines, and systems with regard to their function, use, and safety. Electives courses are offered to permit greater concentration in any given area.

The curriculum stresses fundamentals of engineering science and analysis, and the development of creative thinking in the application of the principles to engineering design. Laboratory work is concerned with materials testing and experimental and test procedures in the

fields of thermodynamics, fluid mechanics, heat transfer and design. Emphasis is given to technical reports, their content, form and presentation. Laboratory courses are selected to provide a balanced program of instruction and hands-on experience. Facilities are available for graduate research.

With the primary focus of attention on America's African American population, the Mechanical Engineering Department endeavors through innovative instruction, individual advising, and meaningful professional exposure, to provide an academic program of high quality to students from a diverse background. The program is accredited by EAC/ABET.

Mission Statement

The mission of the Mechanical Engineering Department consists of the following components:

1. **Instruction**: The mission of the Department in this area is to provide the undergraduate students with a broad education in the professional discipline as well as in the liberal arts area. For the graduate students, the mission is to provide them with advanced technical knowledge and research capabilities in specialized areas. The Department strives to instill a desire for lifelong learning in all students.

2. **Research**: In this area, the Department's mission is to advance the scientific and technical knowledge for the benefit of all.

3. **Service**: The Department's mission in this area is to interact professionally with other members of the technical community and provide outreach services to the local and regional community.

Program Educational Objectives

Within a few years after graduation, our graduates will be:

1. Successful practitioners in mechanical and related industries, private practice or government.

2. Engaged in graduate studies or continuing education endeavors in mechanical engineering or related fields.

3. Engaged in professional development by participating in structured professional activities.

SUGGESTED CURRICULUM FOR MECHANICAL ENGINEERING MAJOR

Freshman Year

1st Semester		*Cr.*	*2ndSemester*		*Cr.*
OREN 0100	Orientation	1	MENG 0132	Freshman Design	1
MENG 0131	Engineering Graphics	2	ENGL 0102	English Comp. II	3
ENGL 0101	English Comp. I	3	MATH 0208	Calculus II	4
MATH 0207	Calculus I (NSM)	4	OREN 0101	Orientation	1

	SBS (HIST)	3	CHEM 0231	Gen. Chemistry I (NSM)	4
	Bio. Sc.Elec. (NSM)	3	CHEM 0233	Gen. Chemistry Lab	1
	PE	1		SBS	3
		Total 17			Total 17

Sophomore Year

1st Semester		*Cr.*	*2ndSemester*		*Cr*
MATH 0209	Calculus III	4	MENG 0211	Statics	3
MENG 0206	Mechanical Dissection	2	CSCI 0229	C $^{++}$ for Engineers (NSM)	3
MENG 0237	Prob. Stat. Manuf.	3		SBS	3
PHYS 0310	Physics I	3		HFA(MENG 0290)Eng.Eth	3
PHYS 0313	Physics Lab I	1		HFA (ENGL)	3
	SBS (HIST)	3		PE	1
	HFA	2			
		Total 18			Total 16

Junior Year

1st Semester		*Cr.*	*2ndSemester*		*Cr.*
MATH 0307	Differential Equation	3	MENG 0314	Manufacturing Process	3
MENG 0311	Thermodynamics I	3	MENG 0313	Fluid Mechanics	3
MENG 0316	Strength of Materials	3	MENG 0312	Thermodynamics II	3
MENG 0212	Dynamics	3	MENG 0317	Meas. & Analysis Lab	1
PHYS 0311	Physics II	3	MENG 0416	Mechanical Design I	3
PHYS 0314	Physics Lab II	1	MENG 0315	Theory of Machines	3
MENG 0310	Exp. Mech. Lab	1			
		Total 17			Total 16

Senior Year

1st Semester		*Cr.*	*2ndSemester*		*Cr.*
MENG 0318	Materials Engineering	3			
MENG 0319	Adv. Materials Lab	1	MENG 0412	Thermal Sciences Lab	1
MENG 0429	Engineering Economics	2	MENG 0422	Capstone Design	3
EENG 0380	Prin. Of Elect. Engr.	3	MENG 0414	Heat Transfer	3
MENG 0420	Computer-Aided Des.	2	MENG 0432	Mechatronics	3
MENG 0441	FE Review	0	MENG 0418	HVAC	3
EENG 380L	Elect. Engr. Lab	1	MENG 0425	Renewable Energy	2
	Technical Elective	3			
		Total 15			Total 15

SBS: Social/Behavioral Sciences **HFA: Humanities/Fine Arts** **Total: 131 credits**

NSM: Natural Sciences/Mathematics **PE: Physical Education**

COURSES FOR UNDERGRADUATES

MENG 0131. ENGINEERING GRAPHICS. 1st Semester. Lect. 1, Lab 4, 2 credits. Introduction to engineering drawing; design processes; freehand sketching; orthographic projection of multiviews; pictorials; sectional and auxiliary views; dimensioning; tolerances; drafting; 3D solid modeling.

MENG 0132. FRESHMAN DESIGN. 2nd Semester. Lect. 0, Lab 2, 1 credit. Fundamentals of design process; sketching; conceptual design; prototyping and evaluations; technical report writing and presentation. Prerequisite: MENG 0131.

MENG 0206. MECHANICAL DISSECTION. 1st Semester. Lect. 0, Lab 4, 2 credits. Hands on assembly and disassembly of engineering artifacts; basic function of mechanical components; design concepts and design analysis of artifacts; computer aided graphics of artifact elements. Prerequisite: MENG 0131.

MENG 0211. STATICS. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Resolution and composition of forces and moments; centroid and second moment of areas; free body diagrams; equilibrium of particles and rigid bodies; simple trusses. Prerequisites: MATH 0207.

MENG 0212. DYNAMICS. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Kinematics and kinetics of particles, systems of particles and rigid bodies; work and energy method; power; impulse and momentum. Prerequisite: MENG 0211.

MENG 0237. PROBABILITY AND STATISTICS FOR MANUFACTURING. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Introduction to probability and statistics; treatment of data; probability distributions; random variables; probability density functions; regression analysis; introduction to quality control. Prerequisite: MATH 0207.

MENG 0290. ENGINEERING, ETHICS AND SOCIETY. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Engineering and moral complexity; moral reasoning; engineering as social experimentation; commitment to safety; workplace responsibilities and rights; global issues; case studies; contemporary engineering issues. Prerequisite: Sophomore Standing.

MENG 0310. EXPERIMENTAL MECHANICS LABORATORY. 1st and 2nd Semester. Lect. 0, Lab 2, 1 credit. Measurement of mechanical properties using the tensile test and flexure test, and impact test; application of strain gauges; stress analysis using photoelasticity; vibration analysis of mass spring system; design of experiment; report writing. Corequisite: MENG 0316.

MENG 0311. THERMODYNAMICS I. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Basic concepts; thermodynamic processes and cycles; first and second laws of thermodynamics; evaluating properties of gases and vapors; control volume analysis; ideal gas; entropy. Prerequisite: MATH 0207.

MENG 0312. THERMODYNAMICS II. 2nd Semester. Lect. 3, Lab 0, 3 credits. A continuation of MENG 0311 with emphasis on application to internal combustion and steam engines, turbines, compressors; refrigeration cycles; thermochemistry and combustion. Prerequisite: MENG 0311.

MENG 0313. FLUID MECHANICS. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Fluid statics and fluid dynamics; principles of conservation of mass, energy, and momentum applied to fluid systems; flow measuring devices; dimensional analysis and similitude; pipe flow. Prerequisite: MATH 0208.

MENG 0314. MANUFACTURING PROCESSES. 2nd Semester. Lect. 3, Lab 0, 3 credits. Basic processes for manufacturing engineering products: casting, deformation, cutting, joining, thermo-mechanical treatments; geometrical attributes of engineering components; fits and tolerances; modern topics in manufacturing. Prerequisite: MENG 0206.

MENG 0315. THEORY OF MACHINES. 1st Semester. Lect. 2, Lab 2, 3 credits. Mobility of mechanisms; analysis of the motion and forces of linkages; introduction to mechanism synthesis; gear design. Prerequisite: MENG 0212.

MENG 0316. STRENGTH OF MATERIALS. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Stresses and strains in elastic members under tension, compression, shear, torsion and flexure; combined stresses; shear and moment diagrams; Mohr's circle; deflection of beams; buckling. Prerequisite: MENG 0211.

MENG 0317. MEASUREMENTS AND ANALYSIS. 1st and 2nd Semester. Lect. 0, Lab 2, 1 credit. Measurement of: temperature, viscosity, fluid flow rate; error evaluation; design of experiment; report writing. Corequisite: MENG 0313.

MENG 0318. MATERIALS ENGINEERING. Engineering materials and their atomic structure; microstructure defects; relationship between structure and properties; principles of thermo-mechanical control of mechanical properties; diffusion; phase diagrams; application and selection of materials. Prerequisite: CHEM 0231.

MENG 0319. ADVANCED MATERIALS LABORATORY. 1st and 2nd semester. Lect.0, Lab 2, 1 credit. Flexural, shear, tensile and compression testing of composite material; x-ray diffraction; thermo-gravimetric analysis; microstructure and failure analysis; design of experiment; report writing. Prerequisite: MENG 0316.

MENG 0390. ENGINEERING, ETHICS AND SOCIETY. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Engineering and moral complexity; moral reasoning; engineering as social experimentation; commitment to safety; workplace responsibilities and rights; global issues; case studies; contemporary engineering issues. Prerequisite: Sophomore Standing.

MENG 0412. THERMAL SCIENCES LABORATORY. 1st and 2nd Semester. Lect. 0, Lab 2, 1 credit. Experimentation and measurements in fluid mechanics and heat transfer; efficiency

analysis; design of experiment; data processing and analysis; report writing. Prerequisite: MENG 0313; Corequisite: MENG 0414.

MENG 0414. HEAT TRANSFER. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Steady-state and unsteady heat conduction; analysis and application of heat transfer through extended surfaces; free and forced convection heat transfer; radiative heat transfer; heat exchanger analysis. Prerequisite: MENG 0313, MATH 0209.

MENG 0416. MECHANICAL DESIGN. 1st and 2nd Semester. Lect. 2, Lab 2, 3 credits. Application of engineering mechanics and strength of materials to the analysis, synthesis and design of mechanical elements; theories of failure, stress concentration, fatigue life and thermal stress; consideration of economics, safety; projects in creative mechanical design. Prerequisites: MENG 0316.

MENG 0418. HEATING VENTILATING AND AIR CONDITIONING. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Most air properties and conditioning processes; space heating load and cooling load computations; comfort conditions and requirements; a comprehensive design project is a required part of the course. Prerequisites: MENG 0311; Corequisite: MENG 0414.

MENG 0420. COMPUTER-AIDED DESIGN. 1st and 2nd Semester. Lect. 1, Lab 2, 2 credits. Digital computer as design aid; computer-aided design software; finite element data preparation, analysis and design. Prerequisite: MENG 0316; Corequisite: MENG 0416 or AENG 0342 (for Aerospace students).

MENG 0421. DESIGN FOR MANUFACTURING AND ASSEMBLY. 1st and 2nd Semester. Lect. 2, Lab 0, 2 credits. Basic principles of design for economical manufacturing and assembly; materials and processes selection criteria for ease of manufacturing and assembly and optimization of cost; general rules of design for manufacturing of mechanical components and assemblies; principles of product aesthetics; case studies in design of assemblies. Co-requisite: MENG 0416.

MENG 0422. CAPSTONE DESIGN. 1st and 2nd Semester. Lect. 1, Lab 4, 3 credits. Open ended design problems; definition of customer needs and functional requirements; product design specifications; concept generation and selection; design of components and systems; design synthesis, optimization, and design layout; bill of materials; risk assessment; complete mechanical design project from feasibility to evaluation. Prerequisite: MENG 0416.

MENG 0425. RENEWABLE ENERGY. 2nd semester. Lect.2, Lab 0, 2 credits. Introduction to renewable energy; solar thermal energy; photovoltaic power; bio-energy; hydro power; wind energy; design project. Prerequisite: MENG 0311.

MENG 0429. ENGINEERING ECONOMICS. 1st and 2nd Semester. Lect. 2, Lab 0, 2 credits. Fundamentals of general economics; interest formulas; annual costs; present worth; rate of return; depreciation; income tax; inflation. Prerequisite: Junior Standing.

MENG 0431. CONTROL SYSTEMS. Offered on demand. Lect. 3, Lab 0, 3 credits. Basic principles of feedback control; dynamic models, block diagrams, transfer functions; time-domain specifications; proportional, integral, and derivative feedback; root-locus design method; frequency-response design method; introduction to state-space design; case studies. Prerequisite: MENG 0212, MATH 0307.

MENG 0432. MECHATRONICS. 1st and 2nd Semester. Lect. 3, Lab 0, 3 credits. Electronic interface between mechanical world and computer software; digital topics; sensors; common mechanical and electrical applications; system response; integrated circuits; microcontrollers for embedded systems. Prerequisites: EENG 0380, CSCI 0229.

MENG 0441. FE REVIEW. 1st and 2nd Semester. Lect. 1, Lab 0, 0 credit. Review the science, mathematics and engineering courses to prepare students for the Fundamentals of Engineering Examination. Prerequisite: Junior Standing.

MENG 0490. THESIS. Offered on Demand. 3 credits. Intensive literature search involving a deeper study in the chosen subject and a critical dissertation in a typewritten form comparable to but lesser in scope than Tuskegee University Master's degree thesis. Prerequisite: Senior Standing.

MENG 0491. RESEARCH. 1st and 2nd Semester. 3 credits. Activity involving scientific study in an approved field offering an opportunity for independent study on a physical or engineering phenomenon. A typewritten technical report is required. Prerequisite: Senior Standing.

MENG 0492. ENGINEERING ANALYSIS AND DESIGN. 1st and 2nd Semester. 1-4 credits. Design or comprehensive analysis and development of an engineering product or process. The student is required to report his/her finding in an approved typewritten technical report. Prerequisite: Senior Standing.

MENG 0493. SPECIAL TOPICS. Offered on Demand. Lect. 3, Lab 0, 3 credits. Topics of special interest to the faculty and students. Prerequisite: Junior Standing.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

***Note:** The following courses are offered primarily for graduate students. Seniors with high GPA may, however, choose only 500-level courses with Departmental approval as technical electives. All 500-level courses are offered on demand only.

MENG 0512. ADVANCED FLUID MECHANICS. Offered on Demand. Lect. 3, Lab 0, 3 credits. Development of rate of strain relationships for viscous compressible and incompressible fluid flow. General equations of motion, laminar and turbulent flow, boundary layer theory. Prerequisite: MENG 0313.

MENG 0513. FLUID MACHINERY. Offered on Demand. Lect. 3, Lab 0, 3 credits. Mechanical principles of the turbomachine theory; the design of centrifugal pumps and

compressors; one-dimensional flow; three dimensional effect; similarity considerations; air-foil and cascade theory; effects of finite span; design of axial flow machines, compressibility effects; turbines for hydropower, impulse, reaction, and Kaplan machines; surges and surge suppressors; positive displacement machinery. Prerequisite: MENG 0313.

MENG 0520. MECHANICAL VIBRATIONS. Offered on Demand. Lect. 3, Lab 0, 3 credits. Kinematics of vibrations, single and multiple degrees of freedom, natural frequency, forced vibrations, effect of dry and viscous damping, torsional vibrations of crankshafts and geared systems, suppression and elimination of vibrations; vibration of continuous beams, rods and strings. Prerequisites: MENG 0315, MATH 0461.

MENG 0521. ADVANCED DYNAMICS. Offered on Demand. Lect. 3, Lab 0, 3 credits. Foundations of dynamics. Hamilton's principle, LaGrange's equations, Euler's equations, dynamics of gyroscopes, dynamics of particles and rigid bodies, nonlinear vibrations. Prerequisites: MENG 0315 and MATH 0461.

MENG 0522. EXPERIMENTAL STRESS ANALYSIS. Offered on Demand. Lect. 3, Lab 3, 4 credits. Strain measuring devices and techniques; static and dynamic strain and displacement; brittle coating, photoelasticity for two and three dimensional stress analysis. Electronic circuits analysis applied to the measurements, report writing. Prerequisites: MENG 0416 and MATH 0461.

MENG 0523. CONTINUUM MECHANICS. Offered on Demand. Lect. 3, Lab 0, 3 credits. Kinematics and deformation of a continuum. Stress tensors and strain tensors, balance principles for mass, energy, and momentum, constitutive equations. Application of the theory to solid and fluid media. Prerequisites: MENG 0311, MENG 0313, MENG 0416.

MENG 0524. TWO-DIMENSIONAL COMPRESSIBLE FLOW. Offered on Demand. Lect. 3, Lab 0, 3 credits. Study of oblique shock theory; expansion theory and methods of characteristics, equations of motion and velocity potential form will be used as a basis for the study of small disturbance propagation, development of differential equations of second order which are then solved using the methods of characteristics, design of two-dimensional flow passages and shock interactions with sold boundaries, pressure boundaries and shocks. Prerequisite: MENG 0313.

MENG 0527. FRACTURE MECHANICS. Offered on Demand. Lect. 3, Lab 0, 3 credits. Basic principles and applications of fracture mechanics by integrating aspects of materials science and solid mechanics. Emphasis is focused on linear elastic and nonlinear elastic-plastic fracture mechanics theories; practical knowledge of fracture toughness evaluation of metals, polymer and ceramic composites; fatigue crack propagation. Prerequisite: MENG 0416.

MENG 0541. COMPOSITE MATERIALS. Offered on Demand. Lect. 2, Lab 3, 3 credits. Introduction to composite materials; fibers, matrix and interface; mechanical and chemical aspects; design, chemical synthesis, manufacturing and processing methods; mechanical testing methods; understanding of failure mechanisms based on static, fatigue, impact and other properties; microstructural considerations; nondestructive evaluation (NDE) including ultrasonics, acoustic and vibration techniques. Prerequisite: MENG 0318

MENG 0542. MECHANICS OF COMPOSITES. Offered on Demand. Lect. 3, 3 credits. Classification and characterization of composite materials; mechanical behavior of composite materials; stress-strain relation for anisotropic materials; invariant properties of an orthotopic lamina; strength concepts and biaxial strength theories; classical lamination theory and theory of an anisotropic elastic continuum; equations of laminated anisotropic plates.

MENG 0550. ADVANCED THERMODYNAMICS. Offered on Demand. Lect. 3, 3 credits. A statistical approach to the study of the first and second laws, thermodynamics relations for the pure substance, application to Clausius inequality and availability in steady flow, real gas mixtures, introduction to the third law and chemical equilibrium. Prerequisite: MENG 0414.

MENG 0551. ADVANCED HEAT TRANSFER. Offered on Demand. Lect. 3, 3 credits. General problems of heat transfer by conduction, convection and radiation; solution by the analog and numerical methods, thermodynamic boundary layers, analysis of heat exchanges; problems on thermal radiation; extraterrestrial radiation. Prerequisite: MENG 0414.

MENG 0556. STRESS CONSIDERATIONS IN DESIGN. Offered on Demand. Lect. 3, 3 credits. Treatment of stress and strength aspects of machine design, analytical and experimental determination of stresses under steady and fatigue loadings. Postyield behavior, residual stresses, temperature and corrosion effects. Prerequisite: MENG 0416.

MENG 0590. SPECIAL TOPICS. Offered on Demand. Lect. 3, 3 credits. Topics of interest to the faculty and students. Perquisite: Graduate Standing.

FOR GRADUATE STUDENTS ONLY

MENG 0620. ADVANCED TOPICS IN VIBRATION. Lect. 3, 3 credits. Conservative and non-conservative. Free and forced motion of multidegree of freedom systems using advanced matrix methods and digital computer solutions. Vibrations of continuous systems. Approximate methods of solution. Non-linear vibrations. Prerequisite: ME 520. Graduate Standing.

MENG 0623. THEORY OF ELASTICITY. Lect. 3, 3 credits. Stress-Strain relations, strain energy, general methods of elasticity, reciprocal theorems, energy methods and variational principles. The Rayleight-Ritz and Galerkin methods. Finite difference and relaxation method. Tensor application. Prerequisites: ME 416 and Math 461. Graduate Standing.

MENG 0628. FINITE ELEMENT METHOD. Lect. 3, 3 credits. Principles of Finite Element Analysis. Variational Principles, Displacement Polynomials and Shape Functions, Element Family, Application to 2D and 3 D Continuum Problems. Application to Thermal and Fluid Flow Problems, Computer Program Development. Prerequisites: Graduate Standing and Instructor's Approval.

MENG 0629. CRYOGENICS. Second Semester. Lect. 3, 3 credits. A study of low temperature processing and equipment.. Low temperature properties of engineering materials and cryogenic fluids. Storage and transfer system including heat transfer and fluid flow. Zero gravity effect on

storage and handling in space. Various engineering applications. Prerequisite: Graduate Standing.

MENG 0630. ADVANCED COMPUTER-AIDED DESIGN. Lect. 2; Lab. 3, 3 credits. Introduction Digital Computers as a Design Aid, Numerical Analysis and Finite Element Analysis, Computer Aided Design System Software, Application of CAD Techniques to FEM, Application of Interactive CAD Technique. Prerequisite: Graduate Standing.

MENG 0632. COMPUTATIONAL METHODS IN FLUID DYNAMIC & HEAT TRANSFER. Lect. 3, 3 credits. Role and nature of numerical techniques, development of numerical methods, specific features of flow and heat transfer in ducts, covered passages, etc., mathematical models for turbulence, application of the numerical techniques to engineering problems. Development of a general purpose computer program for two dimensional flows with heat transfer and its application to specific problems. Prerequisites: Graduate Standing.

MENG 0634. NUMERICAL ANALYSIS IN ENGINEERING. Lect. 3, 3 credits. Theoretical and computational aspects of polynomial and spline approximations; numerical differentiation and integration; numeral solution of algebraic equations and of system of linear equations. Solutions of ordinary differential equations (Initial value problems); analysis of iterative methods for non-linear, finite dimensional equations; Newton's method, gradient related methods, update methods, etc., finite difference approximations for elliptic and parabolic boundary value problems. The general thrust of this course is the application of these numerical methods in the design of Engineering Systems. Prerequisite: Math 461. Corequisite: Math 561 or 562.

MENG 0651.CONVECTIVE HEAT TRANSFER. Lect. 3, 3 credits. Definitions and applications of convection, turbulent flow and turbulent shear. Transpiration and film cooling. Flow and heat transfer over curved surfaces. Channel flow and heat transfer to non-circular channels with curvature. Prerequisite: ME 551. Graduate Standing.

MENG 0690. PROJECTS. 3 credits. An experimental study and analysis under minimum supervision of the major professor resulting in a formal typewritten report.

MENG 0700. RESEARCH AND THESIS. 6 credits. Arranged under supervision of a major professor in the specific areas of research interest resulting in an approved typewritten dissertation. Prerequisite: Graduate Standing.

MENG 0752. CONTINUOUS REGISTRATION. See Graduate Bulletin.

MENG 0754. CANDIDATE FOR DEGREE. See Graduate Bulletin.

PHYSICS (PHYS)

A major curriculum is offered in physics leading to a Bachelor of Science degree in Physics. A student may pursue the conventional physics major, or physics major with an emphasis in engineering, or a double major curriculum. The department of physics also offers a minor in physics with an emphasis in biology, engineering and mathematics.

The mission of the department is to provide quality education leading to the B.S. degree in Physics, Engineering and other disciplines, and to prepare undergraduate students for graduate studies. The objective of the department is to give the student basic training in the general concepts and principles of physics, and to provide an adequate foundation and background in physics as well as a liberal education. In the four-year curriculum, sufficient training is provided so that the student after graduation has career opportunities in physics and science related fields and opportunities for advanced studies.

The courses offered in Physical Science are designed to provide a broad understanding of the unifying principles of the field of physical science in general. These courses are designed for those students who do not pursue science as a major.

The requirements for a major in Physics, in addition to the general education requirements are:

REQUIRED PHYSICS COURSES

PHYS 310 & 313	General Physics - I & Lab	4 hrs
PHYS 311 & 314	General Physics -II & Lab	4 hrs
PHYS 320	Analytical Mechanics	3hrs
PHYS 330	Electricity and Mag.	4 hrs
PHYS 402	Modern Physics I	4 hrs
PHYS 410	Wave Phenomena	3 hrs
PHYS 411	Physics, Electricity & Magnetism	3 hrs
PHYS 502	Modern Physics Lab I	1 hr
PHYS 510	Thermodynamics	3 hrs
PHYS 511	Modern Physics II	3 hrs
PHYS 520	LASERS & Applications	3 hr
PHYS 550	Solid State Physics	3 hrs
PHYS 551	Research Seminar-I	1 hr
PHYS 552	Research Seminar-II	1 hr

REQUIRED RELATED COURSES

PHYS 0290	Bio-ethics Course	3 hrs
MATH 207, 208, 209	Analytic Geometry & Calculus	12 hrs
MATH 307	Differential Equation	3 hrs
CHEM 231, 232, 233	General Chemistry	9 hrs
CSCI 229	C++	3 hrs

REQUIRED GENERAL EDUCATION COURSES

Required Humanities / Fine Arts (HFA): (14 Credit Hours)

ENGL 0101 and ENGL 0102	6 hrs
Fine Arts/music	2 hrs
English Literature/Composition	3 hrs
Philosophy	3 hrs

Social / Behavioral Sciences (SBS): (12 Credit Hours)

HIST 0103 and HIST 0104	6 hrs
Political Science/Sociology/Psychology/Economics	6 hrs

SUGGESTED CURRICULUM FOR PHYSICS MAJOR

Freshman Year

1st Semester	Cr.	2nd Semester	Cr.
OREN 100 Freshman Orientation	1	OREN 101 Freshman Orien	1
PHED Physical Education	1	PHED Physical Ed	1
ENGL 101 (HFA)	3	ENGL 102 (HFA)	3
SBS (HIST 103)	3	SBS (HIST 104)	3
CHEM 231 Gen Chem I (NSM)	4	CHEM232 Gen Chem II (NSM)	4
CHEM 233 Gen Chem LAB.	1	HFA (MUSC)	2
CSCI 229 C++ Programming (NSM)	3	MATH 207 Cal I (NSM)	4
Total	16	Total	18

Sophomore Year

1st Semester	Cr.	2nd Semester	Cr.
HFA (PHIL)	3	HFA (ENGL)	3
SBS (SOCI, PSYC, ECON)	3	SBS (SOCI, PSYC, ECON)	3
Sci/Tech Elect	3	Sci/Tech Elect	3
MATH 208 Calculus II	4	MATH 209 Calculus III	4
PHYS 310 General Physics I	3	PHYS 311 Gen Physics II	3
PHYS 313 General Physics Lab	1	PHYS314 Gen Physics Lab II	1
Total	17	Total	17

Junior Year

1st Semester	Cr.	2nd Semester	Cr.
English Prof Exam	0	Sci/Tech Elect	3
Sci/Tech Elect	3	Sci/Tech Elect	3
Sci/Tech Elect	3	PHYS 330 Ele Theo (EE 380/380L)	4
PHYS 320 Mechanics	3	PHYS 410 Wave Phenomena	3
PHYS 402 Modern Physics I	4	PHYS 411 E&M The(or EE 333)	3
MATH 307 Differential Equations	3	PHYS 502 Modern Physics Lab	1
Total	16	Total	17

Senior Year

1st Semester	Cr.	2nd Semester	Cr.
Sci/Tech Elect	3	Sci/Tech Elect (Math461)	3
Sci/Tech Elect	3	Sci/Tech Elect	3
PHYS 510 Thermodynamics	3	PHYS 511 Modern Physics II	3
PHYS 550 Solid State	3	PHYS 520 LASERS: App	3
PHYS 551 Seminar-I (Research)	1	PHYS 551 Sem-II (Research)	1
Total	13	Total	13

TOTAL CREDIT HOURS: 127 Cr. Hrs.

SBS: Social/Behavioral Sciences HFA: Humanities/Fine Arts NSM: Natural Sciences/Mathematics

*Sci/Tech Elect: Selected from areas of Engineering, Natural and Physical Sciences, Computer Science, Biology and Mathematics.

MINOR IN PHYSICS

The department of Physics offers minor in Physics. The students should enroll in twenty (20) hours of Physics courses. Eight of the hours must be the following courses:

PHYS 301/310	General Physics - I	3 Credit Hours
PHYS 303/313	General Physics – LAB - I	1 Credit Hours
PHYS 302/311	General Physics - II	3 Credit Hours
PHYS 304/314	General Physics – LAB - II	1 Credit Hours

Twelve additional hours should be selected from approved Physics Courses from 200 to 500 level courses. It is advised that students consult with a Physics faculty member before enrolling in the elective courses.

Course Descriptions

PHYS 0110. INTRODUCTION TO PHSYICS & CHEMISTRY. 1st Semester. Lect. 3, 3 credits. Concepts of length, time, mass, graphs, vectors, one dimensional motion, Newton's Laws, energy, momentum, conservation of energy and momentum.

PHYS 0111. INTRODUCTION TO PHYSICS & CHEMISTRY. 2nd Semester. Lect. 3, 1 credit. Concepts of waves, light and thermal physics. Open ended approach. Prerequisite: PHYS 0110

PHYS 0113. INTRODUCTION TO EXPERIMENTS IN PHYSICS AND CHEMISTRY. 1st Semester. Lab and Recitation 3 hrs, 1 credit. Laboratory experiences in physics and chemistry illuminating the concepts and theories encountered in Physics 110. Pre- or Co-requisite: PHYS 0110.

PHYS 0114. INTRODUCTION TO EXPERIMENTS IN PHYSICS AND CHEMISTRY. 2nd Semester. Lab and Recitation 3 and 1 credit. Laboratory experiences in physics and chemistry

illuminating the concepts and theories and encountered in Physics 111. Open ended approach. Pre- or Co-requisite: PHYS 0111.

PHYS 0201. ENERGY PRINCIPLES AND PROBLEMS: 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. An university level course in energy principles, physics and physical environment designed for the non-science majors. Co-requisite: MATH 0107.

PHYS 0210. PHYSICAL SCIENCE-I. 1st and 2nd Semesters. Lect. 3, 3 credits. First course in physical sciences designed for non-science majors. The objective of the course is to give an insight into the relevance of an activity-oriented approach to the investigation of our world and to emphasize the scientific method in study of natural phenomena. Pre-/Co-requisite: MATH 0107.

PHYS 0211. PHYSICAL SCIENCE-II. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. Advanced course in physical sciences: geology, astronomy, earth and atmospheric science. The aim of the course is to give an insight into the relevance of an activity oriented approach to the investigation of our world and to emphasize the scientific method of study of natural phenomena. Prerequisite: PHYS 0210.

PHYS 0290. ENGINEERING, SCIENCE ETHICS AND SOCIETY. 1st and 2nd Semesters. Lect. 3, 3 credits. Science and Engineering and moral complexity; moral reasoning; science and engineering as social experimentation; commitment to safety; workplace responsibilities and rights; global issues; case studies; contemporary engineering and science issues. Prerequisite: Sophomore Standing.

PHYS 0301. ELEMENTARY GENERAL PHYSICS - I. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. Basic concepts and theories of measurements, mechanics, properties of matter, heat, and thermodynamics with applications in biological sciences. The course is designed for students desiring more advanced algebra based physics course. To be taken in sequence with Phys. 0302. Prerequisite: MATH 0107, Co-requisite: PHYS 0303.

PHYS 0302. ELEMENTARY GENERAL PHYSICS - II. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. Basic concepts, theories and applications of sound, optics, electricity, magnetism, elements of electronics (electrical circuits). Pre-requisite: PHYS 0301, Co-requisite: PHYS 0304.

PHYS 0303. INTRODUCTION TO LABORATORY WORK IN PHYSICS. 1st and 2nd Semesters, Summer. Lab 2,
1 credit. Laboratory work illuminating the concepts, theories applications of physics as encountered in PHYS 0301. Taken concurrently with PHYS 0301, Co-requisite: PHYS 0301.

PHYS 0304. INTRODUCTION TO LABORATORY WORK IN PHYSICS. 1st and 2nd Semesters, Summer. Lab 2,
1 credit. Laboratory work illuminating the concepts, theories, applications of physics as encountered in PHYS 0302. Taken concurrently with PHYS 0302. Co-requisite: PHYS 0302.

PHYS 0305. APPLIED GENERAL PHYSICS - I. 1st Semester, Lect. 3, 3 credits. Basic concepts and measurements with emphasis on the applications in areas of mechanics, properties of matter, and heat. The course is designed primarily for architecture and construction science majors. To be taken in sequence with PHYS. 306. Taken concurrently with PHYS 0307. Prerequisite: MATH 0107.

PHYS 0306. APPLIED GENERAL PHYSICS - II. 2nd Semester. Lect. 3, 3 credits. The basic concepts and measurements with emphasis on the applications in areas of sound, light, electricity and magnetism. The course is designed primarily for architecture and construction science majors. Taken concurrently with PHYS 0308. Prerequisite: PHYS 0305.

PHYS 0307. APPLIED GENERAL PHYSICS LABORATORY. 1st Semester. Lab 2, 1 credit. Laboratory work illustrating the concepts, theories and applications of physics-concepts covered in PHYS 0305. Taken concurrently with PHYS 0305. Corequisite: PHYS 0305.

PHYS 0308. APPLIED GENERAL PHYSICS LABORATORY. 2nd Semester. Lab 2, 1 credit. Lab 2 hrs. Lab Work illustrating the concepts, theories and applications of physics concepts covered in PHYS 0306. Taken concurrently with PHYS 0306. Co-requisite: PHYS 0306.

PHYS 0310. GENERAL PHYSICS - I: 1st and 2nd Semesters. Summer. Lect. 3, 3 credits. A more comprehensive treatment than Physics 301 designed to meet the needs of physics majors as well as advanced students in chemistry, engineering and other areas. Topics related to kinematics, dynamics, conservation of momentum and energy, equilibrium and rotational motion are discussed in details. To be taken in sequence with PHYS 0311. Taken concurrently with PHYS 0313. Prerequisite: MATH 0207.

PHYS 0311. GENERAL PHYSICS - II. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. A more comprehensive treatment than Physics 302 designed to meet the needs of physics majors as well as advanced students in chemistry, engineering and other areas. Topics related to heat, thermodynamics, geometrical optics, electricity and magnetism are rigorously presented. Taken concurrently with PHYS 0314. Prerequisite: PHYS 0310.

PHYS 0313. GENERAL PHYSICS LABORATORY - I. 1st and 2nd Semesters. Summer. Lab 2, 1 credit., consists of experiments on topics covered in PHYS 0310 with an analytical approach (both theoretical and experimental) emphasized. Taken concurrently with PHYS 0310. Corequisite: PHYS 0310.

PHYS 0314. GENERAL PHYSICS LABORATORY - II, 1st and 2nd Semesters. Summer, Lab 2, 1 credit., consists of experiments on topics covered in PHYS 0311 with an analytical approach (both theoretical and experimental) emphasized. Taken concurrently with PHYS 0311. Corequisite: PHYS 0311.

PHYS 0320. ANALYTICAL MECHANICS. 1st and 2nd Semesters. Lect. 3, 3 credits. Fundamental principles of Newtonian mechanics, brief introduction to Lagrange's and Hamilton's equations, and rigid body dynamics. Prerequisite: PHYS 0311.

PHYS 0330. ELECTRICAL THEORY AND MEASUREMENTS. 1st and 2nd Semesters, Lect. 2, Lab 6, 4 credits. Direct and alternating current theory and measurements introductory electronic use and calibration of precision electrical instruments and electronic devices. Prerequisite: PHYS 0311.

PHYS 0402. MODERN PHYSICS - I. 1st and 2nd Semesters, Summer. Lect 4, 4 credits. Introduction to contemporary theory of matter. Special theory of relativity, application of classical mechanics to atoms and molecules, and, an introduction to the basic concepts of quantum mechanics. Prerequisite: PHYS 0311.

PHYS 0410. WAVE PHENOMENA. 1st and 2nd Semesters. Lect 3, 3 credits. Introduction to the study of vibrations and waves in general . Emphasis is placed on the quantitative aspects of vibrations confined to mechanical systems and the general development of the theory associated with electromagnetic waves. Prerequisite: PHYS 0311. Corequisite: MATH 0307.

PHYS 0411. ELECTRICITY AND MAGNETISM. 1st and 2nd Semesters. Lect. 3, 3 credits. Advanced Mathematical theory of electrostatics and magneto-statics, Maxwell's equations, electromagnetic waves and electromagnetic fields. Prerequisite: PHYS 0402.

PHYS 0499. READING AND RESEARCH. 1st and 2nd Semesters. Summer, 1-3 credits. Research and /or reading to be done by each student under the supervision of an instructor. Credits and work to be arranged to suit the interests of students and instructors.

PHYS 0502. MODERN PHYSICS LABORATORY - I. 1st and 2nd Semesters. Lab 3, 1 credit. Selected experiments to acquaint physics majors with modern experimental techniques and physical concepts. Prerequisite: PHYS 0402.

PHYS 0503. MODERN PHYSICS LABORATORY - II. 1st and 2nd Semesters. Lab 3, 1 credit. Continuation of PHYS 0502. Prerequisite: PHYS 0502.

PHYS 0507. BIOPHYSICS. 1st and 2nd Semesters. Lect. 3, 3 credits, Biophysics phenomena and processes; active, passive transport; diffusion, osmosis, membrane dynamics; elementary optoelectronic phenomena; instrumentation, thermodynamics, energetic; molecular spectroscopy, infrared, rotational, vibrational, Raman; NMR, ESR. Prerequisite: PHYS 0302.

PHYS 0510. THERMODYNAMICS. 1st Semester. Lect 3, 3 credits. Thermodynamics and kinetic theory of gases, introduction to statistical mechanics, quantum distributions, transport equations. Prerequisite: PHYS 402

PHYS 0511. MODERN PHYSICS - II. 2nd Semester. Lect 3, 3 credits. The basic postulates and introductory methods of quantum mechanics, classical statistical mechanics, and quantum statistical mechanics with applications in Solid State Physics are studied. Prerequisite: PHYS 0510.

PHYS 0512. HISTORY OF SCIENCE. 1st and 2nd Semesters. Lect. 3, 3 credits. A study of historical development of basic ideas of science in its various disciplines-physics, chemistry biology, astronomy, geology, medicine, and mathematics. The history of scientific ideas in relation to social and political backgrounds from which they came. Historic relations between science and philosophy, art and religion. The present status and future frontiers of science. Pre-requisite: 1 year of Natural or Physical Science.

PHYS 0520. LASERS and their Applications, 1st and 2nd Semesters. Lect. 3, 3 credits. Atomic Transitions, interaction processes, spontaneous and stimulated emission, atomic rate equation, population inversion, amplification, Laser oscillations, Lasing threshold, optical resonator, Propagation of Laser beam in fiber, phase velocity, group velocity, dispersion, pulse broadening, different Laser Systems: Nd:YAG laser, He-Ne laser, Dye laser and Ar ion laser, Applications: LIBS spectroscopy, LIF spectroscopy and measurement of life time in various excited state of the atom. Prerequisite: PHYS 0402.

PHYS 0550. SOLID STATE ELECTRONICS AND PHYSICS. 1st and 2nd Semesters. Lect. 3, 3 credits. Introduction to Quantum Mechanics, Quantum Statistical Mechanics, Quantization of semiconductor crystal vibrations - Phonons, Thermal Properties, Free Electron Fermi Gas, Electron energy bands, Phonon and electronic thermal conductivity in semiconducting systems, and superconductivity. Prerequisites: PHYS 0402 or consent of instructor.

PHYS 0551. SEMINAR - I (Research). 1st and 2nd Semesters. Summer. 1 credit each semester. Required of all physics majors. An individual research project (either experimental or theoretical) and literature search under the advisement of a physics faculty member, which culminates with the submission of a formal report and an open seminar presented to faculty and students.

Prerequisite/Co-requisite: PHYS 0502 or consent of instructor.

PHYS 0552. SEMINAR-II (Research). 1st and 2nd Semesters. Summer. 1 credit. Required of all physics majors. An individual research project (either experimental or theoretical) and literature search under the advisement of a physics faculty member, which culminates with the submission of a formal report and an open seminar presented to faculty and students. Prerequisite/Co-requisite: PHYS 0551 or consent of instructor.

MATERIALS SCIENCE AND ENGINEERING (MSE)

The Materials Science and Engineering (MSE) Department currently offers only a multidisciplinary Ph.D. program. It has several core faculty members as well as affiliated faculty members from several disciplines including Engineering, Chemistry, Physics, Mathematics, Biology, and Computer Science. The Ph.D. Program, which was started in 1998, is designed to serve the needs of students from Computer Science various disciplines of science and engineering. It was tuned to accommodate the diversity and research interests of students with backgrounds in any of the above-mentioned disciplines.

Over the last couple of years the program was critically reviewed by the faculty to determine the adequacy of its contents in providing necessary depth and breadth for the students

to be competitive in the global market. The curriculum shown in this bulletin represents the revised version, which was proposed by the MSE faculty and approved by the administration, to be effective from Spring 2010 semester.

Several state-of-the-art research laboratories are available for students to conduct their research. These include laboratories for materials processing, microelectronics, nondestructive evaluation, and characterization of materials, for students to conduct their research.

Mission Statement

- To strive for a fundamental understanding of the nature of advanced materials towards the goal of environmentally-friendly, health-related, industrial, sporting and military applications.
- To motivate and educate minority students, undergraduate through Ph.D., in the science and engineering of advanced materials.
- To offer outreach activities for K-12 students, and the community teachers.

Admission

Admission to the Program is determined by the Dean of Graduate Studies and Research based on the recommendation of the faculty of the Ph.D. Program in MSE, and is communicated to the candidates by Tuskegee University's Office of Admissions and Records. Competitive candidates for admission should have completed the verbal and quantitative parts of the Graduate Record Examination (GRE).

Candidates, who have completed a Master's (M.S.) Degree in areas related to Materials Science and Engineering, Biology, Chemistry, Physics, or Mathematics, may be granted unconditional admission to the Doctoral Program in MSE.

Candidates who have completed a Bachelor's (B.S.) Degree in areas of Engineering, Biology, Chemistry, Physics and Mathematics with a minimum grade point average of 3.5 may also be granted admission to the Ph.D. program in MSE.

International students who are granted admission in the MSE program must consult with the Office of International Programs at Tuskegee University concerning legal documents to enter and/or stay in the United States for the duration of program.

Advisory Committee

After the student is granted admission, he/she meets with the Director of the Ph.D. Program in MSE program for initial guidance. During the first year of study, the student must form his/her Advisory Committee, which will consist of the major professor/advisor, the Director and a minimum of two other MSE faculty members and two faculty members from outside Tuskegee University. The committee is formally approved by the Dean of Graduate Studies upon

the recommendation of the Director of the MSE program and the Dean of the College of Engineering.

Course Requirements

Students who are admitted to the Ph.D. Program with a Master's Degree in Engineering, Biology, Chemistry, Physics or Mathematics will be required to complete a minimum of 24 credit hours of Ph.D. level courses including 12 credit hours of core courses (MSEG 0601, MSEG 0603, MSEG 0604, MSEG 0605, and MSEG 0606).

Depending on the student's background, some pre-requisite courses may be required.

Students who are admitted to the Ph.D. Program with a B.S. Degree in Engineering, Biology, Chemistry, Physics or Mathematics will be required to complete a minimum of 48 credit hours of graduate courses with a minimum of 24 credit hours of Ph.D. level electives including 12 credit hours of core courses (MSEG 0601, MSEG 0603, MSEG 0604, MSEG 060, and MSEG 0606).

Depending on the student's background, some pre-requisite courses may be required.

Approval of the course work by the Advisory Committee is required.

Research Credits

Students who enter the Ph.D. program in MSE must complete twenty four (24) credit hours of research at the doctorate level (MSEG 0800), before they are allowed to defend their dissertation.

Students who register for research must submit a report to his/her advisor at the end of each semester when the research hours are taken. An "I" grade will be assigned for research and changed to an appropriate letter grade only after the student defends his/her dissertation.

Continuous Registration and Candidacy for Degree

If a student has completed all course and research requirements but has not been admitted to candidacy for the degree, he/she may enroll for Continuous Registration (MSEG 0801). In this case the student will be considered as enrolled full-time.

If a student has completed all course and research requirements and has been admitted to the candidacy for the degree, he/she may enroll as Candidate for Degree (MSEG 0802). In this case also the student will be considered as enrolled full-time.

Change in Area of Specialization, Major Professor or Member of Advisory Committee

Change in the area of student's specialization, major professor or members of the advisory committee may be approved only by the Dean of Graduate Programs. Request for such change(s) must be submitted to the Dean of Graduate Programs with the approval of the Director of the MSE program. The Dean of Graduate Studies and Research will make a decision on the basis of the information presented. A new plan of study may be necessary as a result of the change.

Review of Progress

The advisory committee reviews the student's progress in course work as well as research, at least once each semester, and forwards a formal report to the director of the MSE program. The student must maintain a cumulative GPA of 3.0/4.0.

A student, whose cumulative grade point average falls below 3.0, is allowed one semester to raise his/her GPA to 3.0. Failure on the student's part to do so results in his/her removal from the program.

Time Limit for Graduate Credit

All graduate credit submitted in fulfillment of the requirements for the Ph.D. degree must have been earned within the eight (8) years immediately preceding the date when the degree is conferred.

Graduate credits which are more than eight years but no more than ten years old may be validated according to the following procedures: the student may take examinations for credit in courses in which he/she had previously earned grades of "B" or better but for which credits were lost because of the regulation governing time limitations. A fee, as determined by the office of the Registrar, must be paid at the Business Office before the examination is scheduled. If the student fails the examination, credit may be earned thereafter only by repeating and passing the course through regular registration.

Admission to Candidacy

Requirements for admission to candidacy are:

- Passing a written qualifying examination in the core courses.
- Successful oral presentation of the research proposed to the Advisory Committee
- Submission of application for admission to candidacy.

Students, who fail the written qualifying examination in two attempts, will be removed from the program. If a written qualifying examination is scheduled and the student chooses not to take it, it will be considered as missing one attempt.

Transfer Credits

A student who has earned credits for doctoral courses at other institutions may request his/her advisory committee to consider them for transfer credit. The committee may decide on the number of credits to be transferred and recommend to the registrar, through the director, for further action.

Residency Requirement

The student is required to be in residence for at least one academic year during the course of doctoral study.

Final Oral Examination

Upon completion of all course work and research for the doctoral program, the student through his/her Advisory Committee, should request the Dean of Graduate Programs for a final oral examination to meet the degree requirements.

The Dean of Graduate Programs appoints an Examination Committee consisting of all members of the Advisory Committee and two members from another university and/or industry.

The student must submit a complete draft of his/her dissertation to every member of the Examination Committee at least two weeks prior to the date of the examination.

The oral examination will be on the student's research only.

Approval of all members of the Examination Committee is necessary for the student to pass the oral examination.

Submission of Dissertation

The student must submit to the Dean of Graduate Programs seven corrected copies of his/her dissertation signed by all members of the Examination Committee, the Director of the MSE program and the Dean of the college.

Courses

Core Courses

MSEG 0601. PHYSICS OF MATERIALS. Cr. 3. To gain an understanding of the nature of materials based on the physical principles on which the properties of materials depend. The basic relationships introduced in undergraduate physics and chemistry courses are extended using the concepts of quantum mechanics to relate the properties of materials to their internal structure and external environment. Optical, electrical, thermal and magnetic properties of metals, semiconductors and insulators will be covered.

MSEG 0603. POLYMER PHYSICS. Cr. 3. Principles of polymer physics will be taught. Emphasis is placed on classification of polymers, molecular sizes, polymer blends, morphology, time-independent elasticity, linear viscoelasticity and yield, and yield and fracture of polymers.

MSEG 0604. MATERIALS PROPERTIES AND CHARACTERIZATION. Cr. 3. A multidisciplinary course offering a practical hands-on experience with various analytical equipment and analysis of advanced composite materials including nanomaterials. Focus on sample preparation, principles and applications of various microscopy, thermal and mechanical methods. Covered topics include AFM, SEM, TEM, EDX, X-ray, TGA, DSC, DMA, TMA, tensile, compression and flexure tests.

MSEG 0605. RESEARCH ETHICS. Cr. 1. The course will provide students with an understanding of ethical issues in scientific research. Moral complexities in the engineering profession will be highlighted. Case studies will be used to illustrate how to analyze and resolve identified ethical issues.

MSEG 0606. LITERATURE SEARCH AND TECHNICAL WRITING. Cr. 2. To prepare the MSEG Ph.D. and MS candidates for writing professional papers, making presentations, and preparing theses. To accomplish this objective, the literature related to material science and engineering is surveyed. The tools for searching the material science and engineering literature

are explored. The instructors critically analyze abstracts, formal papers and thesis-related writings prepared by the students.

Elective Courses

MSEG 0607. PROPOSAL DEVELOPMENT. Cr. 3. In this course emphasis will be placed on technical research proposal writing. Focus will be placed on solicitation search, critical review of the literature on the research subject, development of the proposed research idea, highlights of the proposed research innovation, development of research work plans and tasks, projected outcome and deliverables, and cost proposal development.

MSEG 0611. MOLECULAR MODELING OF POLYMERS AND NANOCOMPOSITES. Cr. 3. To introduce students to the fundamentals of molecular modeling and to put that knowledge to use in a class project. Mini-projects and homework sets will be assigned as needed. Mini-projects require computer calculations. Homework sets will be drawn from the text and from literature sources.

MSEG 0612. NANOSCALE SCIENCE AND ENGINEERING. Cr. 3. This course aims to introduce students to nanoscale materials science and technology. It will cover topics such as nanoscale material synthesis, properties and applications. It will also emphasize the theory, modeling and simulation approaches used to understand the synthesis mechanisms and morphological changes in nanoscale materials systems, as well as the properties of materials at the nanoscale. The course will have a balanced materials science (main thrust of the course) mechanics, physics and chemistry and technology flavor. Prerequisites: graduate standing or senior undergraduate

MSEG 0613. MECHANICAL BEHAVIOR OF MATERIALS. Cr. 3. Principles of mechanical behavior of engineering materials will be taught by integrating aspects of materials science and solid mechanics. Emphasis is placed on structure and deformation in materials, mechanical testing, stress-strain relationships, complex and principal states of stress and strain, yielding and fracture of cracked bodies. Prerequisite: MENG 316

MSEG 0621. POLYMER SCIENCE AND ENGINEERING. Cr. 3. Introduce the concepts of polymer science and engineering; chain structure and configuration; molecular weights and sizes, concentrated solutions and phase separation behavior; the amorphous state; viscoelasticity and rubber elasticity; transitions and relaxations; crystalline state of polymers; morphology of crystalline polymers. *(Prerequisite: MSEG 0603)*

MSEG 0622. KINETICS OF MATERIALS. Cr. 3. Activated rate theory, solid-state diffusion, atomic theory of diffusion, Kirkendall effect, Darken equations, high diffusivity phenomenon and chemical reaction kinetics, pertinent to transformations.

MSEG 0623. THEORY OF ELASTICITY. Cr. 3. Stress-Strain relations, strain energy, general methods of elasticity, reciprocal theorems, energy methods and variational principles. The Rayleigh-Ritz and Galerkin methods. Finite difference and relaxation method. Tensor application. *Prerequisites: MENG 0416 and MATH 0461. Graduate Standing.*

MSEG 0624. POLYMER CHEMISTRY. Cr. 4. A survey course on polymeric materials. Areas covered are the synthesis and reactions of polymers, thermodynamics and kinetics of polymerization, the physical characterization of polymers and the fabrication, testing and uses of polymers. These topics are integrated into both the lecture and the laboratory. *Prerequisites: Organic Chemistry 321&323; Physical Chemistry 402 & 404*

MSEG 0625. THERMODYNAMICS OF MATERIALS SYSTEMS. Cr. 3. The laws of thermodynamics applied to the stability of material phases, crystal imperfections, solubility, oxidation, surface and interface energy, and transformations.

Application of the Laws of Thermodynamics to Material Systems: chemical reactions, phase equilibria and transformations, oxidation, theoretical phase diagram generation and non-ideal solution theory. (*Prerequisite: MSEG 0625)*

MSEG 0627. FRACTURE MECHANICS. Cr. 3. Basic principles and applications of fracture mechanics by integrating aspects of materials science and solid mechanics. Emphasis is placed on linear elastic and nonlinear elastic-plastic fracture mechanics theories; practical knowledge of fracture toughness evaluation of metals, polymer and ceramic composites; fatigue crack propagation. Prerequisite: MENG 0416.

MSEG 0628. FINITE ELEMENT METHOD. Cr. 3. Principles of finite element analysis, variation principles, displacement polynomials and shape functions, element family, application to 2D and 3D continuum problems, application to thermal and fluid flow problems, computer Program development. Prerequisites: Graduate standing and instructor's approval.

MSEG 0629. MICROSTRUCTURAL ANALYSIS OF MATERIALS. Cr. 3. To provide an integrated treatment of the science of microstructural analysis which emphasizes the interaction of the specimen with the electron beam used to probe the microstructure. The three main aspects of microstructural morphology, phase identification, crystallography, and microanalysis of the chemical composition will be covered. Following an introduction, the principal methods of characterization, e.g., diffraction analysis, scanning and transmission electron microscopy, and chemical microanalytical techniques will be taught. Some laboratory assignments will also be incorporated in this course. (Prerequisite: MSEG 0604)

MSEG 0640. NON-DESTRUCTIVE EVALUATION TECHNIQUES. Cr 3. Basics of NDE of metals and advanced materials, ultrasonics, modal analysis, acoustic emission, acousto-ultrasonics, acoustic impact testing, X-ray radiography, Eddy-current testing, and laser measurements.

MSEG 0641. COMPOSITE MATERIALS. Cr. 3. Introduction to composite materials; fibers, matrix and interface; mechanical and chemical aspects; design, chemical synthesis, manufacturing and processing methods; mechanical testing methods; understanding of failure mechanisms based on static, fatigue, impact and other properties; microstructural considerations. Prerequisite: MENG 0318.

MSEG 0642. MECHANICS OF COMPOSITES. Cr. 3. Classification and characterization of composite materials; mechanical behavior of composite materials; stress-strain relation for anisotropic materials; invariant properties of an orthotropic lamina; strength concepts and biaxial strength theories; classical lamination theory and theory of an anisotropic elastic continuum; equations of laminated anisotropic plates. Prerequisite: MSEG 0641.

MSEG O643. ELECTRONIC MATERIALS PROCESSING I. Cr. 3. Theory and current technology for Si integrated circuit fabrication processes, including crystal growth, wafer preparation, epitaxy, oxidation, photolithography, diffusion, ion implantation, thin film deposition by chemical vapor deposition (CVD), etching and metallization, process simulation.

MSEG 0644. ELECTRONIC MATERIALS PROCESSING II. Cr. 3. Materials processing for III – V compound semiconductor devices and integrated circuits. Materials requirements for high speed devices and process technology for the fabrication of these devices, self-aligned structures and integrated circuit processing, quantum well structures and their properties, processing of light emitting diodes and semiconductor lasers.

MSEG 0645. SYNTHESIS AND CHARACTERIZATION OF ELECTRONIC MATERIALS. Cr. 3. Principles of materials growth and characterization for electronic and photonic materials. Bulk and epitaxial growth, chemical vapor deposition (CVD), plasma enhanced CVD (PECVD), Metallorganic CVD (MOCVD), molecular beam epitaxy (MBE), activated source MBE technologies, corresponding characterization techniques for evaluation of material quality, including theoretical basis for these techniques.

MSEG 0646. PROCESSING OF ADVANCED SEMICONDUCTOR DEVICE STRUCTURES. Cr. 3. Processing and physics of operation of Si high power devices, SiC high-power and high-temperature devices, advances in GaN device structures. A comparative study of advanced semiconductor materials and their processing technologies.

MSEG 0647. SPECIAL TOPICS IN ADVANCED SEMICONDUCTOR DEVICES. Cr. 3. Advanced bipolar devices and fabrication technology, heterojunction bipolar transistors, advanced MOS devices, the BICMOS process.

MSEG 0663. SPECIAL FUNCTIONS. Cr. 3. Infinite series of functions, improper integrals. gamma function, beta function, digamma and polygamma functions. Error function and related functions. Elliptic integrals. Legendre polynomials, Legendre series and theory conveyance. Hermite polynomials, Laguerre polynomials. Bessel functions of the first kind. Integrals of Bessel functions. Orthogonality of Bessel functions and recurrence formulas.

MSEG 0690. SPECIAL TOPICS. Cr. 3. Advanced topics in materials science and engineering. (prerequisites: Graduate standing and approval of major professor and instructor)

MSEG 0800. RESEARCH. Cr. 0-9. Arranged under supervision of a major professor in the specific areas of research interest resulting in an approved typewritten dissertation. Prerequisite: Graduate standing.

MSEG 0801. CONTINUOUS REGISTRATION

MSEG 0802. CANDIDATE FOR DEGREE

SCHOOL OF ARCHITECTURE AND CONSTRUCTION SCIENCE

MISSION STATEMENT

ROBERT R. TAYLOR SCHOOL OF ARCHITECTURE AND CONSTRUCTION SCIENCE

The School, through its Department of Architecture and Department of Construction Science, follows the founding policy of Tuskegee University – "Learning to do by doing." Although both departments originated in trade and vocational training, the present mission is to develop competent professionals capable of solving the complex problems of today and tomorrow.

The Department of Architecture provides training in the art and science of architectural design. Its broadly based curriculum is structured as a two plus three year program, including course offerings in architectural design, building technology, architectural practice, urban planning, and the history and theory of architecture.

Graduates of the program enter the profession as capable architect interns who later become registered architects. They are capable of solving a variety of design problems ranging from individual buildings to building complexes and urban design.

The Department of Construction Science provides professional training in building construction management. The curriculum can be completed in four years and includes courses in general studies and physical sciences, construction materials and systems, surveying, construction management and business.

Graduates who complete the Construction Science program enter the building industry as professionals who are capable of performing in a number of capacities. The curriculum endeavors to produce professionals who are managers of people, finance, time and physical resource, who are knowledgeable of the standards of quality required of all trades employed during the construction process.

The Architecture and Construction Science programs prepare professionals who are capable of playing an active role in rebuilding our cities and towns so they may become truly meaningful places for all people to work and live. These programs endeavor to develop professionals with an appreciation for the humanistic (social, psychological and physical) aspects of a building problem, as well as other factors such as health, safety, and economic feasibility.

As the corollary to the instructional and service elements of its mission, the research goals of the school are designed to preserve, refine, and develop further the bodies of knowledge already discovered for dissemination and sharing; discover new knowledge for the continued growth of individuals and society; seek out new applications of knowledge to help resolve the problems and desires of modern society and enrich it; and to be able to practice specific professional disciplinary areas in the marketplace.

Students in Architecture and Construction Science are provided with a sound scientific and technical foundation, which employs the latest techniques of the discipline. They are also provided with a broad socio-humanistic background, which is so essential to twenty-first century solution-making. Graduates are encouraged to become professionally qualified and seek graduate study or continuing education as a mechanism for their personal development.

Significant library and research facilities are available to students in the School of Architecture and Construction Science. In addition to the main library, the school is served by one branch library, fully staffed with trained, full-time personnel. The library maintains an extensive listing of books and references.

The computer applications laboratory includes the latest equipment and software in microcomputing and computer-aided design and graphics. In addition the school's computer resources include complete computer plotting capability and a laser cutter laboratory.

ARCHITECTURE AND CONSTRUCTION SCIENCE PROGRAMS

Prior training in drawing or sketching, while desirable, is not required. Tuskegee seeks students who have strong willingness to think, study, and work, and who desire to perceive life and create good environments for people.

All freshman applicants must take the Scholastic Aptitude Test (SAT) and have their scores reported to Tuskegee University before admission can be given. American College (ACT) results are also acceptable. High School graduates should have earned credit of 15 units of work which include:

Course Description	**Minimum Units**	**Desirable Units**
English	3 units	4 units
History or other Social Sciences	2 units	3 units
Mathematics (at least one of which Shall be in Algebra)	3 units	4 units
Science (one in Physical Science, One in Biological Science)	2 units	3 units
Additional units from English,	5 units	5 units

TRANSFER STUDENTS

Students who wish to enter from other colleges or universities must be eligible to re-enter the institution last attended and must furnish (a) letter of honorable dismissal from the institution last attended (b) certificate of high school work covering the entrance requirements as described above and (c) official transcript and course descriptions of work done in all institutions previously attended. Credit will be allowed only for courses with a grade of "C" or better, and which are similar to those in the curriculum.

Transfer applicants for the Architecture Program who receive transfer credit for all courses and requirements of the first two years must meet the same eligibility requirements for admission into the Professional Program. Transfer credit for required architecture courses will only be accepted from NAAB accredited schools of architecture, and after evaluation of the student's work and recommendation by the architecture faculty. Transfer credit allowed toward 300, 400, or 500 level courses for freshman or sophomore applicants do not guarantee admission into the

Professional Program. Students are urged to apply by December 1 for admission in the Fall Semester. Admission for the Spring Semester is not recommended because of course sequencing problems.

FINANCIAL ASSISTANCE

Federal and University Programs

Financial aid is available to qualified students. The program is administrated by the Director of Financial Aid. Scholarships are available to students based on academic merit and achievement. Further details concerning aid may be secured from the Office of Financial Aid, Carnegie Hall, Tuskegee University, Tuskegee, AL 36088.

Tutorships are available to outstanding students possessing leadership qualities. Candidates selected for these positions are expected to tutor in laboratory and night tutoring sessions.

Undergraduate Research Assistantships are available to qualified students. Candidates selected for these positions and expected to work with graduate students under the supervision of research faculty in fields of special interest to the faculty.

Reserve courses training opportunities are available. Both Air Force ROTC and Army ROTC provide tuition support at Tuskegee University. Cooperative Education programs also are available. Participating companies offer financial assistance to selected students.

VETERANS

The School welcomes veterans seeking educational opportunities in architecture and construction science and management. Veterans interested in attending Tuskegee University should contact the nearest Office of Veterans Affairs, the local Urban League, or, Office of the Dean, School of Architecture and Building Construction Sciences, Tuskegee University.

COOPERATIVE EDUCATION

Cooperative Education Program: The School of Architecture and Building Construction Sciences offers students an opportunity to combine academic studies and industrial work experience through participation in the Cooperative Education Program. Alternate sessions are spent in school and in industry (or governmental agencies). This is usually a five-year program which enables the students to gain professional maturity and financial assistance to help defray their educational expense.

Pre-Cooperative Program: Several agencies and industries have developed, in conjunction with Tuskegee University, a Pre-cooperative Program. High School graduates may enter a summer pre-cooperative period in industry and receive their first year's tuition and textbook expenses from industry. Assuming satisfactory progress, the student then enters the regular Cooperative Program as a rising sophomore.

For further information, contact the Director of Career Development and Placement.

ACADEMIC POLICIES FOR ARCHITECTURE AND CONSTRUCTION MAJORS

Class Load

The minimum load of a full-time undergraduate architecture and construction student is (12) credit hours per semester. A student who registers for less than the minimum load is classified as a part-time student.

The maximum load for a full-time undergraduate architecture and construction science student in good standing is nineteen (19) credit hours per semester, exclusive of basic ROTC.

Exceptions to the above may be recommended by the Dean and must be approved by the Provost, based on the academic performance and the recommendation of the student's faculty advisor.

Minimum Standards for Retention

The standards for retention are listed in the TUSKEGEE UNIVERSITY ACADEMIC REGULATIONS AND PROCEDURES FOR UNDERGRADUATES.

Requirements for Graduation

The requirements for graduation are listed in the TUSKEGEE UNIVERSITY ACADEMIC REGULATIONS AND PROCEDURES FOR UNDERGRADUATES. In addition, the following special requirements for architecture and construction science students are listed for references:

a. They must earn a minimum grade of "C" in required Architecture, Mathematics and Science courses.
b. They must satisfy the architecture and construction science faculty that they are suitable representatives of Tuskegee University.

Academic Advisement

All students in the School are advised in the selection of courses and guided in the registration process by a designated faculty advisor.

Advisor's Responsibility

Faculty Advisor's responsibility includes:

a. Explaining the curriculum, provisional sheet, and flowchart to the advisee.
b. Explaining to the advisee, the curriculum in particular, the Socio-Humanistic, Science and Technical Electives and their sequential nature.
c. Assisting the students in the selection of courses and other academic matters.

Student's Responsibility

It is the student's responsibility to:

a. Understand the curriculum, Academic Regulations and Procedures for Tuskegee University.
b. Choose the courses in the order shown on the flowchart which guarantees that the co-requisites are satisfied.
c. Keep the Faculty Advisor informed about his/her plans, academic progress and problems.
d. Meet all requirements for graduation.

The Department of Architecture

As stated above, the program of study in architecture is structured as a two plus three year curriculum. The professional degree, Bachelor of Architecture is conferred upon the completion of the total five years of study. The first two years, referred to as the Pre-Professional program, provide students with the proper foundation in general education and liberal arts courses such as English composition, mathematics, physics, world history and humanities. Students also take courses in architectural design, graphics and architectural history during the freshman and sophomore years. Following the completion of the Pre-Professional program, all students must apply for admission to the Professional Program, which begins with the third year.

The final three years make up the Professional Program. In this portion of the curriculum, students take courses in architectural design, environmental control systems, structural design, materials of construction, theory of architecture, urban planning and architectural practice.

Before a sophomore can advance to the third year of the curriculum (first year of the three year Professional Program), the student must file an application which confirms that all first and second year (Pre-Professional Program) courses, except MATH 0207 or 0227, have been satisfactorily completed. In addition, a cumulative grade point average of 2.25 overall, and a 2.50 in architecture courses must be earned. Students must present portfolios of their graphic work produced during their first two years.

The architectural curriculum is continuously evaluated by its administrators, faculty, and students to insure that it maintains the high standards required by the National Architectural Accrediting Board (NAAB) and remains sensitive to current significant problems and issues of our society. The program also strives to minimize the traditional schism between the non-academic and the academic world through design studios, field trips, visiting lecturers and internship guidance.

Transfer applicants for the Architecture Program who receive transfer credit for all courses and requirements of the first two years must meet the same eligibility requirements for admission into the Professional Program as described above. In order to receive transfer credit for a required architecture (ARCH) course, the transfer course must be from a NAAB-accredited architecture program.

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on

the extent of its conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitutes an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

The Tuskegee University, Robert R. Taylor School of Architecture and Construction Science, Department of Architecture offers the following NAAB-accredited degree program:

B. Arch (170 undergraduate credits)

Next accreditation visit for this program: 2011

REQUIRED CURRICULUM FOR FIVE YEAR B. ARCH DEGREE

PRE-PROFESSIONAL PROGRAM

1st Year

1st Semester	Cr.	2nd Semester	Cr.
ARCH 101 Intro to Arch	3	ARCH 102 Intro to Arch	3
ENGL 101 Composition I	3	ENGL 102 Composition II	3
MATH 107 Coll Alg & Trig I	4	MATH 108 Coll Alg & Trig II	4
Elective: Physical Educ	1	Elective: Physical Educ	1
HIST 103 World Civ I	3	Elective: Philosophy	3
UNIV 101 Found for College	1	Elective: Social/Behav Science	3
Total	**15**	UNIV 102 Found for College	1
		Total	**18**

2nd Year

1st Semester	Cr.	2nd Semester	Cr.
ARCH 201 Arch Design Studio	3	ARCH 202 Arch Design Studio	6
ARCH 221 People & Built Environ	3	ARCH 211 Arch Presentation	3
ARCH 252 Arch History I	3	ARCH 345 Computer Appl in Arch	3
MATH 207 or 227 Calculus	4	ARCH 352 Arch History II	3
PHYS 305 General Physics I	3	PHYS 306 General Physics II	3
PHYS 307 Lab	1	PHYS 308 Lab	1
Total	**17**	English Proficiency Exam (EPE)	0
		Total	**19**

Based on SAT/ACT results, a student may be placed in a higher level English or Math course than those listed above. If this occurs the total number of credit hours for the semester must still be met.

PROFESSIONAL PROGRAM

Admission Requirements: Passing of all Pre-Professional Architecture courses and EPE (except Math 0207 or 0227), with minimum grades, minimum GPA's and portfolio review as listed in TU Bulletin under the Department of Architecture.

3rd Year

1st Semester	Cr.	2nd Semester	Cr.
ARCH 301 Arch Design Studio	6	ARCH 302 Arch Design Studio	6
ARCH 331 Materials & Const I	3	ARCH 332 Materials & Const II	3
ARCH 341 Env Control Sys I	3	ARCH 342 Env Control Sys II	3
ARCH 343 Structures I	3	ARCH 344 Structures II	3
Elective: English	3	Elective: General	3
Total	**17**	**Total**	**17**

4th Year

1st Semester	Cr.	2nd Semester	Cr.
ARCH 401 Arch Design Studio	6	ARCH 402 Arch Design Studio	6
ARCH 423 Theory of Arch	3	ARCH 414 Const Documents	3
ARCH 443 Structures III	3	Elective: Professional	3
Elective: General	3	Elective: General	3
Elective: General	3		
Total	**14**	**Total**	**17**

5th Year

1st Semester	Cr.	2nd Semester	Cr.
ARCH 501 Arch Design Studio	5	ARCH 502 Capstone Project	6
Elective Professional	3	ARCH 534 Building Economics	3
ARCH 521 Urban Plan Seminar	3	Elective: Professional	3
ARCH 523 Professional Practice	3	Elective: General	3
Elective: Business	3		
Total	**15**	**Total**	**17**

Total Credits 170

Elective Requirements: 35 semester hours in total; including two hours of physical education, three hours of philosophy, three hours of social/behavioral science, three hours of English, six

hours of professional electives, three hours of businesses electives and fifteen hours of general electives.

Grade Requirements: A minimum grade of C will have to be earned in all required Architecture curriculum courses except electives. For electives, a minimum grade of D is required.

Architecture Course Descriptions

Architecture Design Studios:

ARCH 0101. INTRODUCTION TO ARCHITECTURE. 1st Semester. Lab 12, 3 credits. This course introduces students to formal ordering systems in architecture. Students learn fundamental skills in design, drawing and model making. Design projects are architectonic – conceptual – in nature and are designed to teach students to think systematically and critically.

ARCH 0102. INTRODUCTION TO ARCHITECTURE. 2nd Semester. Lab 12, 3 credits. This course continues the architectonic approach of ARCH 0101 and extends it to the design of inhabitable, contextualized spaces. An emphasis is placed on visual communication skills. Prerequisite: ARCH 0101.

ARCH 0201. ARCHITECTURE DESIGN STUDIO. 1st Semester. Lab 12, 3 credits. In this course students learn to develop an architectonic concept into an architectural solution. An emphasis is placed on the analysis and use of building precedents, drawing on the congruent Architecture History I course. Students are introduced to simple building systems, the principles of sustainable design and code requirements with an emphasis on accessible design. Prerequisite: ARCH 0102. Co-requisite: ARCH 0252.

ARCH 0202. ARCHITECTURE DESIGN STUDIO. 2nd Semester. Lab 12, 6 credits. This course continues the approach of ARCH 0201 and its emphasis on building precedents, building systems, sustainable design and accessible design. Computer applications in design are introduced. In connection with the ARCH 0211 Presentation course, students create a digital portfolio of their work. Prerequisite: ARCH 0201. Co-requisites: ARCH 0211, ARCH 0352 and ARCH 0345.

ARCH 0301. ARCHITECTURE DESIGN STUDIO. 1st Semester. Lab 12, 6 credits. In this course, the student applies an expanded knowledge of building systems to the design process. Content from congruent building technology courses will be applied in studio projects in an integrated way. An emphasis is placed on the form-generating role of the building site and context. Life safety requirements are stressed as an integral part of the design concept. Prerequisite: ARCH 0201 and Professional Program admittance. Co-requisites: ARCH 0331, ARCH 341 and ARCH 0343.

ARCH 0302. ARCHITECTURE DESIGN STUDIO. 2nd Semester. Lab 12, 6 credits. This course continues the application of knowledge from congruent architectural technology courses. Prerequisite: ARCH 0301. Co-requisites: ARCH 332, ARCH 342 and ARCH 344.

ARCH 0401. ARCHITECTURE DESIGN STUDIO. 1st Semester. Lab 12, 6 credits. This course

focuses on the comprehensive design of a building from the programming phase through construction details. An emphasis is placed on the integration of building systems as an approach to sustainable design. Students learn to develop a theoretical stance and select an associated design methodology as part of their design process. A focus is placed on the role of the detail in design and how to document construction details. Prerequisite: ARCH 0302.

ARCH 0402. ARCHITECTURE DESIGN STUDIO. 2nd Semester. Lab 12, 6 credits. This course continues the comprehensive design approach of ARCH 0401. Prerequisite: ARCH 0401.

ARCH 0501. ARCHITECTURE DESIGN STUDIO. 1st Semester. Lab 12, 6 credits. This course focuses on architectural design within an urban context, with an emphasis on socioeconomic issues and community redevelopment. Projects are at an urban scale and incorporate planning issues. Prerequisite: ARCH 0402. Co-requisite: ARCH 0521.

ARCH 0502. ARCHITECTURE DESIGN STUDIO. 2nd Semester. Lab 12, 6 credits. In this course the student implements the thesis developed in the ARCH 0503 Thesis Seminar course. The student is allowed wide latitude in the type of project undertaken. The student is expected to draw from the full scope and depth of knowledge and skills acquired in the previous design studios. An emphasis is placed on critical thinking, originality, ethical design and perceptual sensitivity. Prerequisite: ARCH 0501 and ARCH 0503.

Building Technology:

ARCH 0331. MATERIALS AND CONSTRUCTION I. 1st Semester. Lect. 3, 3 credits. This course, the first in a two-course sequence, covers the materials and methods related to wood and masonry construction. A historical overview of these materials is provided. Their role in sustainable design is presented including embodied energy and green building materials and processes. An emphasis is placed on building material assemblies and outline specifications. The course content is presented in such a way as to be directly applied in the congruent ARCH 0301 design studio. Prerequisite: ARCH Professional Program admittance. Co-requisite: ARCH 0343.

ARCH 0332. MATERIALS AND CONSTRUCTION II. 2nd Semester. Lect. 3, 3 credits. This course, the second in a two-course sequence, covers the materials and methods related to steel and reinforced concrete construction. A historical overview of these materials is provided. Their role in sustainable design is presented including embodied energy and green building materials and processes. An emphasis is placed on building material assemblies and outline specifications. The course content is presented in such a way as to be directly applied in the congruent ARCH 0302 design studio. Prerequisite: ARCH 0331. Co-requisite: ARCH 0344.

ARCH 0341. ENVIRONMENTAL CONTROL SYSTEMS I. 1st Semester. Lect. 3, 3 credits. This course, the first of a two-course sequence, covers thermal control systems, water and waste systems and fire protection systems. A historical overview of these systems is provided. They are presented in a context of sustainable design with an emphasis on hybrid active/passive design strategies. The course content is presented in such a way as to be directly applied in the congruent ARCH 0301 design studio. Prerequisite: ARCH Professional Program admittance, MATH 0108 and PHYS 0305, 0306, 307 and 308.

ARCH 0342. ENVIRONMENTAL CONTROL SYSTEMS II. 2nd Semester. Lect. 3, 3 credits. This course, the second in a two-course sequence, covers electricity, illumination, signal systems, transportation, and acoustics. A historical overview of these systems is provided. They are presented in a context of sustainable design with an emphasis on hybrid active/passive design strategies. This two-course sequence concludes with an overview of the integration of environmental control systems into the building whole. The course content is covered is presented in such a way as to be directly applied in the congruent ARCH 0302 design studio. Prerequisite: ARCH 0341, MATH 0108 and PHYS 0305, 0306, 307 and 308.

ARCH 0343. STRUCTURES I. 1st Semester. Lect. 3, 3 credits. This course, the first of a three-course sequence, covers wood structural systems. The course content includes mechanics and strength of wood structures, types of wood structural members, and the design and analysis of wood structural systems. The course content is presented in a context of sustainable design and in such a way as to be directly applied in the congruent ARCH 0301 design studio. Prerequisite: ARCH Professional Program admittance, MATH 108, and PHYS 0305, 0306, 307 and 308. Co-requisite: ARCH 0331.

ARCH 0344. STRUCTURES II. 2nd Semester. Lect. 3, 3 credits. This course, the second in a three-course sequence, covers steel and tensile structural systems: mechanics and strength, types of structural members and structural investigation (design and analysis). The course content is presented in a context of sustainable design and in such a way as to be directly applied in the congruent ARCH 0302 design studio. Prerequisite: ARCH 0343, MATH 0108 and PHYS 0305, 0306, 307 and 308. Co-requisite: ARCH 0332.

ARCH 0443. STRUCTURES III. 1st Semester. Lect. 3, 3 credits. This course, the final course in a three-course structures sequence, covers masonry and reinforced concrete structural systems. The course content includes mechanics and strength of structural members and systems, types of structural members and systems and design and analysis of a structural system including the sizing and layout of components. The course content is presented in a context of sustainable design and in such a way as to be directly applied in the congruent ARCH 0401 design studio. Prerequisite: ARCH 0332, ARCH 0344, MATH 0108 and PHYS 0305, 0306, 307 and 308.

ARCH 0414. CONSTRUCTION DOCUMENTS. 2nd Semester. Lab. 3, 3 credits. This course covers the fundamental principles and skills required to create construction drawings and outline specifications. An emphasis is placed on the role of the detail in architecture and on the integration of building systems. Students are introduced to building code analysis and construction cost estimating. An emphasis is placed on writing outline specifications using standard professional formats and materials assemblies as represented in large-scale wall sections. The course content is presented in such a way as to be directly applied in the congruent ARCH 0402 design studio. Prerequisites: ARCH 0332, ARCH 0342, ARCH 0401 and ARCH 0443.

History and Theory:

ARCH 0211. ARCHITECTURAL PRESENTATION. 2nd Semester. Lab 3, 3 credits. This course provides a survey of the presentation methods used by architects to communicate design ideas.

Students explore various two-, and three-dimensional media, including manual and digital methods. Students create a portfolio of their work for inclusion in their application to the Professional Program. The course content is presented in such a way as to be directly applied in the congruent ARCH 0202 design studio. Co-requisite: ARCH 0202

ARCH 0221. PEOPLE AND THE BUILT ENVIRONMENT. 1st Semester. Lect. 3, 3 credits. This course provides a survey of the psychological and social issues relating to the built environment. The effect of architecture on human behavior is explored as a basis for socially responsible design. Students are given an overview of basic architectural research methods, presented in such a way as to be directly applied in the congruent ARCH 0201 design studio. An emphasis is placed on demonstrating critical thinking skills through writing and speaking. Prerequisite: ARCH 0102 and ENGL 0102.

ARCH 0252. ARCHITECTURE HISTORY I. 1st Semester. Lect. 3, 3 credits. This course provides a survey of the history of the built environment from pre-history through the middle ages. A global geographical perspective is taken and works from Western and non-Western cultures are studied from each time period. An emphasis is placed on how architecture is formed by its social, geographical and technological contexts. Students' demonstrate critical thinking skills through writing and speaking. Prerequisite: ENGL 0102.

ARCH 0345. COMPUTER APPLICATIONS. 2nd Semester. Lab 3, 3 credits. This course provides a survey of the use of information technology in architecture. The primary objective is for the student to become proficient at producing basic CAD drawings including site plans, floor plans, elevations and sections. Students learn how to print CAD drawings and are exposed to computer applications in design, presentation and engineering analyses. The course content is presented in such a way as to be directly applied in the congruent ARCH 0202 design studio. Prerequisite: ARCH 0201.

ARCH 0352. ARCHITECTURE HISTORY II. 2nd Semester. Lect. 3, 3 credits. This course is a continuation of ARCH 0252 and provides a survey of the history of the built environment from the Renaissance through the present. A global geographical perspective continues to be taken and works from Western and non-Western cultures are studied from each time period. Students' demonstrate critical thinking skills through writing and speaking. Prerequisite: ARCH 0252.

ARCH 0423. THEORY OF ARCHITECTURE. 1st Semester. Lect. 3, 3 credits. This course teaches students the investigative skills needed to engage in applied research in architecture. These skills are applied in a term paper investigating one or more of the theoretical paradigms which have influenced the design of the built environment from antiquity through the present. An emphasis is placed on developing students' critical thinking skills through writing and speaking. Prerequisites: ARCH 0302 and ARCH 0352.

ARCH 0521. URBAN PLANNING SEMINAR. 1st Semester. Lect. 3, 3 credits. This is an introductory course to urban design with an emphasis on physical planning. A survey of the history and major theories of urbanism are presented. Students study the fundamental elements and principles of urban design and the relationship between architecture and the urban scale. Students' demonstrate critical thinking skills through writing and speaking. Prerequisites: ARCH

052, ARCH 402 and ARCH 423.

ARCH 0523. PROFESSIONAL PRACTICE. 1st Semester. Lect. 3, 3 credits. This course provides an overview of architectural practice. Topics include preparing for practice, forming and managing a firm, acquiring and managing projects and project agreements. Students are provided with an overview of the Intern Development Program (IDP) and assisted with creating their IDP files. An overview of strategies for taking the Architecture Registration Exam (ARE) is given. An emphasis is placed on the architect's leadership role in the building enterprise. Prerequisites: ARCH 0402.

ARCH 0534. BUILDING ECONOMICS. 2nd Semester. Lect. 3, 3 credits. This course covers the economics of building construction. Students learn basic construction cost estimating and the factors which effect costs. Prerequisites: ARCH 0332 and ARCH 501.

Electives:

These courses are offered on an as-available basis and may be taken by a student to fulfill the general elective or professional elective requirements.

ARCH 0361/0362/0363. 1ST, 2nd and 3d semesters. 3 credits. This is an independent study course in which the student initiates and implements an architectural project under the supervision of a faculty advisor. Prior to beginning the work the student and advisor sign an agreement describing the scope of work, learning objectives, grading criteria and schedule. Prerequisite: Professional Program admittance.

ARCH 0364. HISTORIC PRESERVATION I. 1st Semester. Lect. 3, 3 credits. This course presents a summary of the principles of historic preservation. An overview of the historic Tuskegee campus will be provided and used as a framework for first-hand study and discussion of preservation issues including researching a building's history, determining its significance, assessing its condition and creating a rehabilitation plan. The model for the course will be the Secretary of the Interior's Standards for Rehabilitation. Prerequisite: Professional Program admittance.

ARCH 0365 HISTORIC PRESERVATION II. 2nd Semester. Lect. 3, 3 credits. This course is a continuation of ARCH 0364 with a focus on preservation planning. An emphasis will be placed on the role of governmental agencies in preservation planning and financing. The role of preservation in community redevelopment will be studied including the Main Street Four-Point approach through the National Trust for Historic Preservation. Prerequisites: Professional Program admittance and ARCH 0364 with "C" or above.

ARCH 0366. SUSTAINABLE DESIGN. 2nd Semester. Lect. 3, 3 credits. This course covers the man-made causes of pollution and climate change, the growth of the environmental movement, sustainable strategies in architecture and urban design, green building programs and life cycle assessment. An overview of the LEED system is provided. Prerequisite: Professional Program admittance.

ARCH 0367. GLOBAL PERSPECTIVES IN ARCHITECTURE. 2nd Semester. Lect. 3, 3 credits. This course provides an overview of current global issues in architecture, planning and sustainable development. Course requires students to research, study and interpret the intersection between architecture, urban design, architectural history, historic preservation, and cultural interpretation from a comparative worldview. The course's philosophical basis is shaped by the perception that architecture and its contextual landscape are inherited cultural legacies that embodies values to the present and future generations. This course typically includes an optional study tour to a country outside the United States. Prerequisites: Professional Program admittance.

ARCH 0368. COMPUTER APPLICATIONS II. 1st and 2nd Semesters. Lab. 3, 3 credits. This course is a continuation of ARCH 0345 Computer Applications. Students learn to apply advanced computer programs including those for Building Information Modeling, 3D modeling and building performance analysis. Prerequisites: ARCH 0345 and Professional Program admittance.

The Department of Construction Science

The Department of Construction Science at Tuskegee is one of the oldest construction baccalaureate programs in the country. Its roots can be traced back to the trade orientation that Tuskegee had in the early twentieth century. Its mission at one time was to provide skilled craftsmen who were capable of building sound structures and who would ultimately strive to become general contractors.

However, its present mission is much broader than its original one. The skills that are required of its graduates are more comprehensive. Construction graduates are required to appreciate the work of the craftsman and know the standards of quality that are required of all trades involved in the construction process. But the construction professional is also a manager of people, money, time and physical resources. The curriculum of the Construction Science Program endeavors to develop these skills through course offerings in general studies, Physical Science, Humanities, Business, and Architecture in addition to construction courses.

REQUIRED CONSTRUCTION SCIENCE CURRICULUM

1st Year

1st Semester	**Cr.**	**2nd Semester**	**Cr.**
CSMT 101 Intro to Const I	3	CSMT 102 Intro to Const II	3
ENGL 101 Composition I	3	ENGL 102 Composition II	3
MATH 107 Coll Alg & Trig I	4	MATH 108 Coll Alg & Trig II	4
PHED: Physical Education	1	PHED: Physical Education	1
HIST 103 World Civ I	3	HIST 104 World Civ II	3
Elective: Fine/Performing Arts	2	Elective: Humanities	3
Univ. 101: Freshman Orientation	1	Univ. 102: Freshman Orientation	1
Total	**17**	**Total**	**18**

2nd Year

1st Semester	Cr.	2nd Semester	Cr.
CSMT 345 Surveying & Layouts	3	CSMT 346 Const Layouts	3
CSCI 110 Basic Programming	3	CSMT 347 Computer Appl. in Const.	3
CSMT 332: Materials & Const. II	3	CSMT 331 Materials & Const I	3
PHYS 306 General Physics	3	PHYS 305 General Physics	3
PHYS 308 General Physics Lab	1	PHYS 307 Physics Lab	1
MATH 207 or 227 Calculus	4	ENGL 203/201/204Tech. Writing	3
		EPE (English Proficiency)	
Total	**17**	**Total**	**16**

3rd Year

1st Semester	Cr.	2nd Semester	Cr.
CSMT 341 Env Control Syst. I	3	CSMT 348 Const Methods	3
CSMT 343 Structures I	3	CSMT 352 Safety	3
ECON 201 Prin. of Econ. I	3	CSMT 342: Env. Con. Syst. II	3
BUS 211 Accounting	3	CSMT 344: Structures II	3
BUS 331 Principals of Mgmt	3	BUSN 212: Accounting II	3
Elective: General/ Soci. / Psyc.	3	BUS 342 Org Behavior	3
Total	**18**	**Total**	**18**

4th Year

1st Semester	Cr.	2nd Semester	Cr.
CSMT 401 Advanced Const I	3	CSMT 402: Advanced Const II	3
CSMT 431 Const Mgmt I	3	CSMT 432: Const. Mgmt II	3
CSMT 443 Structures III	3	Elective: General	3
CSMT 441 Cost & Estimating I	3	CSMT 442: Cost & Estimating II	3
CSMT 435 Soils/Foundations	3		
BUSN 452 Business Law	3	BUSN 422: Financial Inst.	3
Elective: Business	3		
Total	**18**	**Total**	**18**

Total Credits 138 Hours (Not including Freshman Orientation Courses)

Based on SAT/ACT scores, a student may be placed in higher level English or Math courses than those listed above. If this occurs, the total number of credit hours for the semester must still be met

GRADE REQUIREMENTS: A minimum of "C" grade will have to be earned in all required Construction Curriculum sheet courses. For electives courses "D" is the minimum grade and they are required to be at "200" level minimum. In a prerequisite course, the student must complete that course BEFORE enrolling in the next course in the sequence.

Construction Science Course Descriptions

CSMT 0101. INTRODUCTION TO CONSTRUCTION I. 1st Semester. Lect 3, 3 credits. Orientation to the construction industry, construction practices and builder responsibilities; familiarization with construction vocabulary and introduction to construction graphics and mechanical drawing techniques.

CSMT 0102. INTRODUCTION TO CONSTRUCTION II. 2nd Semester. Lect. 3, 3 credits. Introduction to construction organization methods. Continued elaboration on construction drawings and the preparation of and interpretation of working drawings. The purpose of specifications will be introduced. Prerequisite: CSMT 0101.

CSMT 0331. MATERIALS AND CONSTRUCTION I. 1st Semester. Lect. 3, 3 credits. This course, the first in a two-course sequence, covers the materials and methods related to wood and masonry construction. A historical overview of these materials is provided. Their role in sustainable design is presented including embodied energy and green building materials and processes.

CSMT 0332. MATERIALS AND CONSTRUCTION II. 2nd Semester. Lect. 3, 3 credits. This course, the second in a two-course sequence, covers the materials and methods related to steel and reinforced concrete construction. A historical overview of these materials is provided. Their role in sustainable design is presented including embodied energy and green building materials and processes. Prerequisite: CSMT 0331.

CSMT 0345. SURVEYING AND LAYOUTS. 1st Semester. Lab 3, 3 credits. Fundamental principles of surveying; use of transit and level; measurement of distances and angles; differential leveling; layout of building and establishment of lines and levels thereof. Planning and development of building sites. Prerequisites: MATH 0107, 0108 and CSMT 0102.

CSMT 0346. CONSTRUCTION LAYOUT AND COMPUTATIONS. 2nd Semester. , Lab. 3, 3 credits. This course will appropriately cover various topics in surveying and layout. It will concentrate on building layout, measurements, and calculations of cut and fill, grades and slope. Prerequisite: CSMT 0345.

CSMT 0347. COMPUTER APPLICATIONS IN CONSTRUCTION. 2nd. Semester Lab. 3, 3 credits. This course is designed to teach students the use of computer technology in solving architectural and construction management problems. Using desk-top computers and a variety of software, students will be introduced to computer-aided design and drafting programs. Specifically, the course will provide instruction on the use of these programs as they apply to design, drafting, program analysis, cost estimating, scheduling and structural design and analysis

CSMT 0341. ENVIRONMENTAL CONTROL SYSTEMS I. 1st Semester. Lect. 3, 3 credits. This course, the first of a two-course sequence, covers thermal control systems, water and waste systems and fire protection systems. A historical overview of these systems is provided. They are presented in a context of sustainable design with an emphasis on hybrid active/passive design strategies. Prerequisite: MATH 0108 and PHYS 0305, 0307 & 0306, 0308.

CSMT 0342. ENVIRONMENTAL CONTROL SYSTEMS II. 2nd Semester. Lect. 3, 3 credits. This course, the second in a two-course sequence, covers electricity, illumination, signal systems, transportation, and acoustics. A historical overview of these systems is provided. They are presented in a context of sustainable design with an emphasis on hybrid active/passive design strategies. This two-course sequence concludes with an overview of the integration of environmental control systems into the building whole. Prerequisite: CSMT 0341, MATH 0108 and PHYS 0305, 307 & 0306,308.

CSMT 0343. STRUCTURES I. 1st Semester. Lect. 3, 3 credits. This course, the first of a three-course sequence, covers wood structural systems. The course content includes mechanics and strength of wood structures, types of wood structural members, and the design and analysis of wood structural systems. Prerequisite: MATH 108, and PHYS 0305, 307 & 0306, 308.

CSMT 0344. STRUCTURES II. 2nd Semester. Lect. 3, 3 credits. This course, the second in a three-course sequence, covers steel and tensile structural systems: mechanics and strength, types of structural members and structural investigation (design and analysis). Prerequisite: CSMT 0343, MATH 0108 and PHYS 0305, 0307 & 0306, 0308

CSMT 0443. STUCTURES III. 1st Semester. Lect. 3, 3 credits. This course, the final course in a three-course structures sequence, covers masonry and reinforced concrete structural systems. The course content includes mechanics and strength of structural members and systems, types of structural members and systems and design and analysis of a structural system including the sizing and layout of components. Prerequisite: CSMT 0344, MATH 0108 and PHYS 0305, 0307 & 0306, 0308.

CSMT 0348. CONSTRUCTION METHODS. 2nd Semester. Lect. 3, 3 credits. Discussion of the building construction processes, techniques, use and the characteristics of tools and equipment, and labor saving devices and methods. Prerequisites: CSMT 0331 and CSMT 0332.

CSMT 0352. CONSTRUCTION SAFETY. 1st Semester. Lect.3, 3 credits. Topics that will be discussed will include O.S.H.A. regulations, safety procedures and programs, protection of craftsmen and the public and safe usage of equipment and tools. Prerequisite: Junior Status.

CSMT 0401. ADVANCED CONSTRUCTION I. 1st Semester. Lect. 3, 3 credits. The goal is a full understanding of complete systems involving general, electrical and mechanical units fitting together in proper sequence with close attention to organizing, planning, scheduling and controlling units of construction. Prerequisites: CSMT 0331, 0332 and CSMT 0344.

CSMT 0402. ADVANCED CONSTRUCTION II. 2nd Semester. Lect. 3, 3 credits. A continuation of Construction Lect 0401. Construction productivity is approached from the laboratory point of view. Projects in building research are developed by the student. Prerequisite: CSMT 0401.

CSMT 0431. CONSTRUCTION MANAGEMENT I. 1st Semester. Lect. 3, 3 credits. This course will cover project management topics such as purchasing procedures, labor management,

job control, union negotiations and field organization. Prerequisites: CSMT 0331, 0332 & CSMT 0344.

CSMT 0432. CONSTRUCTION MANAGEMENT II. 2nd Semester. Lect. 3, 3 credits. Overall planning and scheduling of project such as CPM, fast tracking, computer aids, resource allocations, forecasting, etc. Prerequisites: CSMT 0331, 0332 and CSMT 0341.

CSMT 0435. SOILS, FOUNDATIONS AND DRAINAGE. 1st Semester. Lect. 3, 3 credits. Introduction to soil mechanics, foundations, and surface water drainage. Soil pressure theories and their application to design of footings, basement walls, retaining walls and sheet piling structures. Soil classification and engineering properties are covered in addition to soil volumetric and gravimetric relationship; foundation construction systems and a state-of-art survey of foundation construction equipment and methods. Also, an elementary study of rainfall and runoff, and the hydraulics of culverts and drainage pipes and soil-water problems. Perquisites: CSMT 0331, 0343 and CSMT 0348.

CSMT 0441. COST AND ESTIMATING I. 1st Semester. Lect. 3, 3 credits. Approximate and detailed estimate of cost of construction projects, including earthwork, foundations, concrete, masonry, steel, mechanical installation, electrical installations, and all other items in the construction of buildings. Costs are developed to include materials, equipment, labor, overhead, profit, taxes, and all other necessary items.
Prerequisites: CSMT 0331, 0332 and CSMT 0344.

CSMT 0442. COST AND ESTIMATING II. 2nd Semester. Lect. 3, 3 credits. Concentration will be placed on estimating and cost control techniques of specific projects. Cost monitoring, cost accounting and inventory control will be among the topics explored. Prerequisite: CSMT 0441.

ARCH 0503. THESIS SEMINAR. 1st Semester. Lect. 2, 2 credits. This course prepares the professional degree candidate for thesis execution, which occurs in the spring semester. Students are provided an overview of advanced architectural research methods. These are used to develop a narrow thesis topic, identify relevant questions and frame a design problem leading to a thesis (argument). This is followed by implementing a pre-design graphic presentation including a site analysis, activity analysis, precedent study and other programming analyses. Students' demonstrate critical thinking skills through writing and speaking. Prerequisites: ARCH 0352, ARCH 0402 and ARCH 0423.

COLLEGE OF ARTS AND SCIENCES

MISSION STATEMENT

The mission of the College of Arts and Sciences is to support students' development of knowledge in the liberal arts and to promote the skills and experiences necessary to excel in the education profession. Courses of study are designed to develop the student's ability to engage in analytical, critical, and quantitative inquiry to increase their understanding of the significant

accomplishments of the human mind, to offer them the tools necessary to build their own fund of knowledge and to be of service to others.

Faculty members in the College of Arts and Sciences work in tandem to achieve the mission of Tuskegee University by developing young men and women who--regardless of careers--are ethical, wise, enlightened, and humane. The mission is accomplished by providing a broad range of general and specialized courses in the liberal arts and a comprehensive offering of courses and experimental activities in the field of education.

The College of Arts and Sciences faculty is committed to professional development, to the discovery and the development of knowledge, to the use of analytical methods that contribute to modern scholarship, and to the improvement of K-12 public education. Moreover, as teachers deeply committed to academic excellence and lifelong learning, the faculty also seeks to serve local, state, regional, national and international communities and seeks to promote the growth of students who will become productive citizens.

The Division of Liberal Arts offers programs in a broad range of disciplines designed to achieve the following objectives:

1. To develop communication skills which will enable each student to read, to write, to speak and to listen effectively;
2. To assist students in understanding and in appreciating the diversity of artistic and cultural expressions and their relationship to the aspirations and to the development of the individual and of humankind;
3. To prepare students with well-rounded exposure to the study of society, social institutions, and interactive behavior among diverse racial, ethnic, and gender groups;
4. To develop students' mathematical, scientific, and technical competence for living in a modern society, and
5. To prepare students to enter graduate and professional studies, teaching and related professions, and other pursuits leading to meaningful careers.

The Division of Education offers courses for the undergraduate program. The education curricula are designed to achieve the following objectives:

1. To prepare effective kindergarten through twelfth grade teachers in a variety of subject areas;
2. To help students understand and appreciate the teaching-learning process;
3. To foster in students the capacity for analytical and reflective thought, enabling continuous professional growth;
4. To enable students to develop a solid foundation from which they may pursue advanced studies and career opportunities, and
5. To help students attain maximum personal growth and development commensurate with their potential.

DIVISION OF LIBERAL ARTS

DEGREE GRANTING AREAS

Bachelor of Arts

English
History

Mathematics
Political Science
Psychology
Social Work
Sociology

The Tuskegee University Board of Trustees has approved majors in Airway Science (Professional Pilot) and Airway Science (Aviation Maintenance). Interested students should consult the Dean, College of Arts and Sciences, for details concerning these two majors.

GENERAL EDUCATION REQUIREMENTS

Humanities – 19 hours
English 0101 – 3
English 0102 – 3
Thirteen (13) additional humanities credit hours selected from THREE of the four disciplines (Art, English, Music, and Philosophy).
Social Sciences – 18 hours
History 0103 – 3
History 0104 – 3

Twelve (12) additional hours in the Social Sciences (Economics, History, Geography, Political Science, Psychology, Sociology, Social Work), six (6) of which must be in the same discipline.
Twelve (12) semester hours of French or twelve (12) hours of Spanish
or
Approved options for majors with the exception of English and Political Science: 12 semester hours in a pattern of courses in the same discipline.
Sciences and Mathematics – 18-20 hours
Math 0107 - 4
Math 0108 - 4

Twelve (12) additional hours from any of the Sciences or Math courses beyond Math 110. (Exceptions may result from mathematics placement).

Students should consult their major department concerning specific requirements for the Foreign Language Option and regarding electives in the Humanities, Social Sciences, Mathematics and the Sciences.

DEPARTMENT OF ENGLISH

The mission of the Department of English is to graduate students with (1) a broad knowledge of English, American, and world literature; (2) a deep appreciation of literature as an avenue to a broader vision of the human condition; and (3) the analytical reading, thinking, and writing skills that will enable them to succeed in graduate studies and/or professional responsibilities.

The department offers the Bachelor of Arts in English and provides its majors with a broad range of introductory and advanced courses, and with independent study and research opportunities, including a senior seminar. The course of study introduces students to important literary texts and the cultural and historical forces that have shaped these works. It allows students to explore the complex intellectual, philosophical, aesthetic, and moral issues reflected in literature, enabling them to develop their verbal and analytical skills and facilitating a deep appreciation of literature as an avenue to a broader vision of the human condition. The English major provides a strong undergraduate liberal arts education and serves as an excellent foundation for a number of careers, including teaching, writing, publishing, journalism, business, and law.

The Department of English is dedicated to developing and maintaining an environment that nurtures intellectual growth and prepares students for lifelong learning.

GENERAL EDUCATION REQUIREMENTS

UNIV 101 and 102, Foundations for College Success, 2 hours
Physical Education, 2 hours

Humanities, 19 hours: ENGL 101 and 102, six hours (**CORE** courses); at least two credit hours selected from the following **CORE** courses: FPAR 101, FPAR 110, FPAR 203, FPAR 204, MUSC 102, MUSC 103, MUSC 110, MUSC 111, MUSC 112, MUSC 113, MUSC 208, MUSC 304, MUSC 305; three credit hours selected from the following **CORE** courses: ENGL 203, ENGL 204, ENGL 205, ENGL 206, ENGL 220, ENGL 327, ENGL 330, ENGL 331; three credit hours selected from the following **CORE** courses: PHIL 201, PHIL 203, PHIL 204, PHIL 205, PHIL 211, PHIL 212, PHIL 237, and other philosophy courses approved by department/college; five additional hours in the humanities (English, Philosophy, Music, Fine and Performing Arts).

Foreign Language Requirement, 12 hours: All twelve hours must be in the same language.

Social/Behavioral Sciences, 18 hours: HIST 102 and 104, six hours (**CORE** courses); six credit hours selected from the following **CORE** courses: POLS 200, POLS 201, SOCI 240, SOCI 241, PSYC 270, PSYC 272, PSYC 273, ECON 201, ECON 202, ECON 203, ECON 204; six additional hours in the social/behavioral sciences (Economics, History, Geography, Political Science, Psychology, Sociology, Social Work). Six hours of the social/behavioral science electives (CORE options or additional courses) must be in the same area.

Natural Sciences/Mathematics, 16 hours: MATH 107, four hours (CORE course); three credit hours selected from the following CORE courses: CSCI 100, CSCI 150, CSCI 205, CSCI 229; six credit hours selected from the following CORE courses: BIOL 111, BIOL 112, BIOL 120, BIOL 121, BIOL 230, BIOL 231, CHEM 200, CHEM 221, CHEM 222, CHEM 231, CHEM 232, CHEM 233, CHEM 234, PHYS 210, PHYS 211, PHYS 301, PHYS 302, PHYS 303, PHYS 304, PHYS 310, PHYS 311, PHYS 313, PHYS 314; three additional hours in the natural sciences (Biology, Chemistry, Physics), Mathematics, or Computer Science.

Free Electives, 14 hours

MAJOR REQUIREMENTS

The requirements for the major in English, in addition to the general education requirements, are as follows:

		Credits
ENGL 202	Advanced Composition for English Majors	3
ENGL 205 or 206	World Literature	3
ENGL 207	Survey of American Literature I	3
ENGL 208	Survey of American Literature II	3
ENGL 301	Survey of English Literature I	3
ENGL 302	Survey of English Literature II	3
ENGL 304	Shakespeare	3
ENGL 305	Modern English Grammar & Linguistics	3
ENGL 330 or 331	Black American Literature	3
ENGL 400	Senior Seminar	3
ENGL 410	Literary Theory	3
	One elective in a literary genre or period	3
	Two additional electives in English	6
	Total	**42**

CURRICULUM FOR THE ENGLISH MAJOR

Freshman Year

1st Semester	Cr.	2nd Semester	Cr.
ENGL 101 English Composition I#	3	ENGL 102 English Com II#	3
HIST 103 World Civilization	3	HIST 104 World Civ.	3
MATH 107 College Alg. & Trig.	4	PHED	1
PHED	1	UNIV 102	1
UNIV 101 Foundations for College Success	1	Foreign Language 102^	3
Foreign Language 101^	3	Nat. Science CORE Elective	3
Natural Science CORE Elective	3	CSCI CORE Elective	3
Total	**18**	**Total**	**17**

Sophomore Year

1st Semester		2nd Semester	
ENGL 202 Advanced Composition #	3	ENGL 208 Am. Lit. II #	3
ENGL 207 Survey of Am. Literature I#	3	ENGL 302 Eng. Lit. II#	3
ENGL 301 Survey of English Lit. I#	3	Foreign Language 202^	3
Foreign Language 201^	3	Soc./Behav. Sci. CORE Elec.	3
Social/Behavioral Science CORE Elective	3	Philosophy CORE Elective	3
FPAR or MUSC CORE Elective	2		
Total	**17**	**Total**	**15**

Junior Year

1st Semester		2nd Semester	
ENGL 205 or 206 World Literature#	3	ENGL 304 Shakespeare#	3
ENGL 305 English Grammar & Ling.#	3	ENGL Genre/Period Elec.#	3
ENGL 330 or 331 Black Am. Literature#	3	ENGL CORE Elective	3
Natural Science Elective	3	Humanities Elective	3
Social/Behavioral Science Elective+	3	Soc/Behavioral Sci. Elective+	3
Total	**15**	**Total**	**15**

Senior Year

1st Semester		2nd Semester	
ENGL 410 Literary Theory#	3	ENGL 400 Senior Seminar#	3
ENGL Elective#	3	Free Elective	3
ENGL Elective#	3	Free Elective	3
Humanities Elective	2	Free Elective	3
Free Elective	3		
Free Elective	2		
Total	**16**	**Total**	**12**

#A minimum grade of "C" is required in ENGL 101/102 and all major courses.
^Students must complete 12 hours in one foreign language.
+Six hours of the social/behavioral science electives must be in the same area.

Course Descriptions

Composition

ENGL 0101. ENGLISH COMPOSITION I. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. An introductory composition course focusing on the essentials of effective writing and emphasizing the expository essay. The course provides instruction and practice in writing clear, coherent, well-developed essays using a variety of rhetorical strategies.

ENGL H101. ENGLISH COMPOSITION-HONORS I. 1st Semester. Lect. 3, 3 credits. An honors section of ENGL 0101 designed for students with high aptitudes in English. Placement determined by department.

ENGL 0102. ENGLISH COMPOSITION II. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. A continuation of ENGL 0101 emphasizing persuasion, critical analysis of literature of various genres, library and Internet research techniques, and the research paper. Prerequisite: ENGL 0101.

ENGL H102. ENGLISH COMPOSITION II-HONORS. 2nd Semester. Lect. 3, 3 credits. An honors section of ENGL 0102 designed for students with high aptitudes in English. Prerequisite: ENGL H101 or permission of instructor.

ENGL 0201. ADVANCED COMPOSITION. 1st and 2nd Semesters. Lect. 3, 3 credits. A one-semester course emphasizing modern rhetoric and its problems; particular emphasis on the modes

of exposition, such as definition, analysis, and comparison, and on the techniques of persuasion. Expository prose models are read and analyzed. Prerequisite: ENGL 0102.

ENGL 0202. ADVANCED COMPOSITION FOR ENGLISH AND LANGUAGE ARTS MAJORS. 1st and 2nd Semesters. Lect. 2, Lab 1, 3 credits. A one-semester course emphasizing rhetorical principles and computer-based research and writing methods. Prerequisite: ENGL 0102.

ENGL 0203. PROFESSIONAL AND TECHNICAL WRITING. 2nd Semester, Summer. Lect. 3, 3 credits. A one-semester writing course designed to enable students to acquire and to demonstrate proficiency in handling basic technical communications (including business correspondence) and various types of exposition (especially those pertinent to technical reports). Prerequisite: ENGL 0102.

ENGL 0204. CRITICAL READING AND TECHNICAL WRITING. 1st Semester. Lect. 3, 3 credits. This course is designed to help students develop and improve technical communication skills in critical reading and technical writing, especially as they apply to professional and technical contexts. The course emphasizes a reader-centered approach to interpreting and composing documents employing technical vocabulary. Prerequisite: ENGL 0102.

ENGL 0300. DIRECTED TUTORING IN ENGLISH. (Offered in response to need and available faculty.) Lect. 1, Lab 1, 1 credit. Under faculty/staff supervision, students in this course will provide tutorial service for undergraduates who need practice in the fundamentals of written English--grammar, mechanics, organization, paragraph development. Course may be taken as many as four times (for as many as four credits). Prerequisite: ENGL 0102.

ENGL 0332. CREATIVE WRITING. (Offered in response to need and available faculty.) Lect. 1, Lab 2, 3 credits. A course open to students desiring guidance and practice in creative writing. Some attention is given to contemporary writing styles, particularly those of black writers. Prerequisite: permission of the instructor.

Language Study

ENGL 0305. MODERN ENGLISH GRAMMAR AND LINGUISTICS. 1st Semester. Lect. 3, 3 credits. This course is designed to help the student acquire a thorough knowledge of traditional grammar and a working familiarity with grammar and other linguistic systems that furnish useful ways of understanding and describing the substance, structure, development, and manner of expression in written and oral discourse. Prerequisite: ENGL 0102.

ENGL 0321. ENGLISH AS A SECOND LANGUAGE. (Offered in response to need and available faculty.) Lect. 3, 3 credits. Designed to improve language skills in English for students whose first language is not English. The course offers directed practice in the patterns of spoken and written English. Prerequisite: ENGL 0102.

ENGL 0411. HISTORY OF THE ENGLISH LANGUAGE. Lect. 3, 3 credits. A study of the origins and development of the English language through the Old English, Middle English, and Modern English periods. Prerequisite: ENGL 0102.

Literature

ENGL 0205. WORLD LITERATURE I. 1st and 2nd Semesters. Lect. 3, 3 credits. A study of significant works of world literature from ancient times to the 1600's. Prerequisite: ENGL 0102.

ENGL 0206. WORLD LITERATURE II. 2nd Semester. Lect. 3, 3 credits. A study of significant works of world literature from the 1600's to the present. Prerequisite: ENGL 0102.

ENGL 0207. SURVEY OF AMERICAN LITERATURE I. 1st Semester. Lect. 3, 3 credits. A survey of American literature from Colonial and Revolutionary beginnings to 1865. Prerequisite: ENGL 0102.

ENGL 0208. SURVEY OF AMERICAN LITERATURE II. 2nd Semester. Lect. 3, 3 credits. A survey of American literature from 1865 to the present. Prerequisite: ENGL 0102.

ENGL 0301. SURVEY OF ENGLISH LITERATURE I. 1st Semester. Lect. 3, 3 credits. Readings in English literature from the Old English period through the Elizabethan Renaissance. Prerequisite: ENGL 0102.

ENGL 0302. SURVEY OF ENGLISH LITERATURE II. 2nd Semester. Lect. 3, 3 credits. Readings in English literature from the Restoration to the present. Prerequisite: ENGL 0102.

ENGL 0304. SHAKESPEARE. 2nd Semester. Lect. 3, 3 credits. A critical study of selected tragedies, histories, comedies, and poems. Prerequisite: six hours of English beyond ENGL 0102.

ENGL 0306. SPECIAL TOPICS. Lect. 3, 3 credits. An advanced study of particular movements, authors, themes, media, and national literatures. Prerequisite: ENGL 0102.

ENGL 0308. CHAUCER. Lect. 3, 3 credits. A selection of Chaucer's major works read in Middle English. Prerequisite: ENGL 0102.

ENGL 0309. THE RENAISSANCE. Lect. 3, 3 credits. Readings in the literature of the 16^{th} and 17^{th} centuries, with an emphasis on English literature. Readings reveal the range of writers' responses to the historical, intellectual, and artistic movements of the period. Prerequisite: ENGL 0102.

ENGL 0311. THE EIGHTEENTH CENTURY. Lect. 3, 3 credits. A study of major literary texts and authors of the period. Prerequisite: ENGL 0102.

ENGL 0326. STUDIES IN DRAMA. Lect. 3, 3 credits. A study of classical and contemporary plays. Course may cover different subgenres, literary movements, or cultures. Prerequisite: ENGL 0102.

ENGL 0330. BLACK AMERICAN LITERATURE I. 1st Semester. Lect. 3, 3 credits. A study of the oral and written literature of black Americans from the 18th century to the

ENGL 0331. BLACK AMERICAN LITERATURE II. 2nd Semester. Lect. 3, 3 credits. A study of black American literature from the Harlem Renaissance to the present. Prerequisite: ENGL 0102.

ENGL 0333. AFRICAN WRITERS. Lect. 3, 3 credits. A study of fiction, poetry, and drama by major African writers. Emphasis is on black African writers, and all works studied are in English (translations, when necessary). Prerequisite: ENGL 0102.

ENGL 0335. LITERATURE OF THE SOUTH. Lect. 3, 3 credits. A multiple-genre approach to controversial topics and problems that have split the South as these issues are reflected in black and Southern literature. Prerequisite: ENGL 0102.

ENGL 0337. STUDIES IN THE NOVEL. Lect. 3, 3 credits. A study of the novel as a literary form and an advanced survey of major themes and movements. Topics to be determined by the instructor. Prerequisite: ENGL 0102.

ENGL 0345. WOMEN AND LITERATURE. 2nd Semester. Lect. 3, 3 credits. An examination of the role of women in literary texts and literary production. Authors may include anyone from ancient times to the present. Prerequisite: ENGL 0102.

ENGL 0347. STUDIES IN POETRY. Lect. 3, 3 credits. Focuses on major genres, periods, and representative authors, with an emphasis on key movements. Prerequisite: ENGL 0102.

ENGL 0400. SENIOR SEMINAR. 2nd Semester. Lect. 3, 3 credits. An in-depth study of special topics in literature. Content varies. Course requirements include written work and formal oral presentations. Prerequisite: senior classification.

ENGL 0401. THE NINETEENTH CENTURY. Lect. 3, 3 credits. Studies in the poetry, fiction, and drama of Great Britain and America, covering the Romantic and Victorian periods in English literature and the Romantic and Realistic periods in American literature. Prerequisite: ENGL 0102.

ENGL 0407. TWENTIETH AND TWENTY-FIRST CENTURY LITERATURE. Lect. 3, 3 credits. Readings in twentieth and twenty-first century literature in English. Prerequisite: ENGL 0102.

ENGL 0409. COMPARATIVE LITERATURE. Lect. 3, 3 credits. A study of themes and forms in selected world cultures/literatures. Prerequisite: Six hours of English beyond English 102.

ENGL 0410. LITERARY THEORY. 1st Semester. Lect. 3, 3 credits. A study of the principal ideas and movements in literary theory. Prerequisite: ENGL 0102.

ENGL 0421/0422. DIRECTED RESEARCH AND WRITING. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. Independent study in English, American, or world literature with a professor as a general guide. A written report of research is required. Prerequisite: A cumulative GPA of at least 2.5 and permission of the department.

Speech

ENGL 0220. PRINCIPLES OF SPEECH. 2nd Semester. Lect. 3, 3 credits. An analysis of the basic principles of communication focusing on communicative processes involving the speaker, the situation, the message, the channel, and the receiver.

ENGL 0224. INTRODUCTION TO ORAL INTERPRETATION. (Offered in response to need and available faculty.) Lect. 3, 3 credits. A study of the structure and content of selected prose, poetry, and drama with the aim of communicating through oral reading their special qualities.

ENGL 0324. SPEECH AND DRAMA. 1st and 2nd Semesters. Lect. 3, 3 credits. A study of oral communication emphasizing content and rhetorical arrangement. Course includes an overview of drama and the planning and implementation of dramatic productions. Prerequisite: ENGL 0102.

ENGL 0327. PUBLIC SPEAKING. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. Preparation and delivery of speeches to audiences.

Foreign Languages

FREN 0101. ELEMENTARY FRENCH I. 1st and 2nd Semesters. Lect. 3, 3 credits. Essentials of novice-level French communication to include listening, reading, writing, and speaking; introduction to Francophone cultures.

FREN 0102. ELEMENTARY FRENCH II. 1st and 2nd Semesters. Lect. 3, 3 credits. Continuation of FREN 0101. Prerequisite: FREN 0101.

FREN 0201. INTERMEDIATE FRENCH I. 1st Semester. Lect. 3, 3 credits. Essentials of intermediate-level French communication to include listening, reading, writing, and speaking; continued review of Francophone cultures and literature. Prerequisite: one year of college French or equivalent. Prerequisite: FREN 0102.

FREN 0202. INTERMEDIATE FRENCH II. 2nd Semester. Lect. 3, 3 credits. Continuation of FREN 0201. Prerequisite: FREN 0201.

FREN 0301. ADVANCED FRENCH I. 1st Semester. (Offered in response to need and available faculty.) Lect. 3, 3 credits. Intensive reading, with special emphasis on reading French literature and communicating at the advanced level. Prerequisite: FREN 0202.

FREN 0302. ADVANCED FRENCH II. 2nd Semester. (Offered in response to need and available faculty.) Lect. 3, 3 credits. Continuation of FREN 0301. Prerequisite: FREN 0301.

SPAN 0101. ELEMENTARY SPANISH I. 1st and 2nd Semesters. Lect. 3, 3 credits. Elementary Spanish grammar; graded reading; introduction to Hispanic culture.

SPAN 0102. ELEMENTARY SPANISH II. 1st and 2nd Semesters. Lect. 3, 3 credits. Continuation of SPAN 0101. Prerequisite: SPAN 0101.

SPAN 0201. INTERMEDIATE SPANISH I. 1st Semester. Lect. 3, 3 credits. Detailed study of the finer points of Spanish grammar; introduction to literature written in Spanish. Prerequisite: one year of college Spanish or equivalent. Prerequisite: SPAN 0102.

SPAN 0202. INTERMEDIATE SPANISH II. 2nd Semester. Lect. 3, 3 credits. Continuation of SPAN 0201. Prerequisite: SPAN 0201 or SPAN 0203.

SPAN 0203. BUSINESS SPANISH I. Lect. 3, 3 credits. This course is designed for students who wish to learn how to conduct business in the Hispanic world, specifically in the area of the Caribbean. Prerequisite: one year of college Spanish or equivalent. Prerequisite: SPAN 0102.

SPAN 0204. BUSINESS SPANISH II. Lect. 3, 3 credits. Continuation of SPAN 0203. Prerequisite: SPAN 0203 or SPAN 0201.

SPAN 0301. ADVANCED SPANISH I. 1st Semester. (Offered in response to need and available faculty.) Lect. 3, 3 credits. Intensive reading, with special emphasis on translating Spanish literature. Prerequisite: SPAN 0202.

SPAN 0302. ADVANCED SPANISH II. 2nd Semester. (Offered in response to need and available faculty.) Lect. 3, 3 credits. Prerequisite: SPAN 0301.

SWAH 0101. ELEMENTARY SWAHILI. (Offered in response to need and available faculty.) Lect. 3, 3 credits. Fundamentals of Swahili grammar and basic vocabulary; practice in speaking, reading, and writing; introduction to East African life and culture.

Journalism

ENGL 0109. INTRODUCTION TO MASS COMMUNICATIONS. Lect. 3, 3 credits. Historical development of mass media, their structures, and their functions in today's society. Prerequisite: ENGL 0102.

ENGL 0209. BASIC NEWS REPORTING. Lect. and Lab 3, 3 credits. Fundamentals of news reporting for newspapers, radio, television, and other media. Prerequisite: ENGL 0102.

ENGL 0210. FEATURE WRITING. Lect. and Lab 3, 3 credits. Instruction and practice in preparation of letters of inquiry, selection of article ideas, and development of features for publication. Prerequisite: ENGL 0102.

Note: Journalism courses are offered in response to need and available faculty.

THE ENGLISH MINOR

The requirements for the English minor are as follows:

One writing course	3 hours
Literature courses	9 hours—English and American
Two English electives	6 hours
Total	18 hours

HONORS COURSES

The Department of English offers honors sections of English 101 and 102: English H101, English Composition I-Honors, and English H102, English Composition II-Honors. These courses are designed for students with high aptitudes in English; placement is determined by the department.

RESEARCH OPPORTUNITIES/ENRICHMENT PROGRAMS

The Department of English provides information on summer research opportunities and other enrichment programs and encourages student participation in purposeful activities that will contribute to their intellectual development and strengthen their preparation for graduate studies or professional positions.

Ralph Ellison Lecture

The Department of English, in cooperation with the Center for Continuing Education, sponsors the annual Ralph Ellison Lecture, which features distinguished scholars, writers, and artists from around the country in an effort to encourage critical examination of significant intellectual, aesthetic, social, and political issues. The lectures are intended to recognize Ellison's contributions to American letters and to invoke the spirit of intellectual rigor and creativity that these achievements exemplify.

CLUBS/ORGANIZATIONS

The Department of English sponsors four organizations: the English Club, Lambda Iota Tau Honor Society, the French Club, and the Spanish Club. Membership in the English Club is open to any student interested in literature, theatre, art, music, or film. Membership in Lambda Iota Tau Honor Society is open to junior and senior English majors or minors with a 3.0 cumulative GPA and a 3.0 GPA in literature courses. Membership in the French Club is open to students enrolled in French classes or students interested in French and Francophone cultures. Membership in the Spanish Club is open to students enrolled in Spanish classes or students interested in Hispanic cultures.

FINE AND PERFORMING ARTS

MISSION

To provide instruction and performing experience to all students interested in broadening their understanding and enjoyment of music and art as fine arts, and for developing their talents in music and art. To provide opportunities for non- majors to participate in musical and artistic activities which will enhance their futures and provide opportunities from experiences in leadership positions that will give them chances to do things that they would not get in any other department.

OBJECTIVES

1. Help the student understand and enjoy music and art through a study of basic elements, forms and styles.

2. Insure that students develop a strong grasp of the languages of music and art.

3. Broaden the students' knowledge of the history of music and art and the cultural heritages existing in periods in music and art.

4. Equip students with strong technical skills in performance and artistic situations with which they can compete for jobs in the music and art professions.

5. Provide basic and specific opportunities for the musical and artistic development of students pursuing study in major fields other than music and art.

6. Offer curricula in music and art on various levels appropriate to the needs of the students and the university.

7. Contribute to and participate actively in the cultural life of the University, area schools and the community at large.

ART

The Art faculty offers an appreciation and understanding of aesthetic expression through visual experiences and proficiency in basic art skills, using a flexible combination of instruction techniques. Among these techniques are demonstrations, lectures, films, guided and independent studio activities, informal critiques, individual consultation and interaction among class members.

MUSIC

Music faculty provides instruction and performing experience to all students interested in broadening their understanding and enjoyment of music as a fine art, and in developing their talents in music. A baccalaureate degree in music is not offered; however, a student may obtain a **minor** in music by completing a total of twenty semester hours of courses approved by a departmental chairperson. Active participation in Band or Choir is required for four consecutive semesters.

The **University Choir** is an organization of approximately one hundred members. Its aim is to cultivate a knowledge of and a taste for the best choral music. The singing of the choir is a regular feature of Sunday chapel services and public assemblies. A smaller unit of about fifty

voices, selected from the total choir and specially trained, is used for concert tours in cases where use of the total choir would be impractical.

The University **Marching and Concert Bands** are organizations with full instrumentation. The bands present concerts and perform for convocations, military and athletic functions sponsored by the University. General elective courses are available to all students as well as courses in applied music in band instruments, voice, piano and organ. Performance groups such as the Marching Band (Crimson Pipers), Concert Band, Jazz Band and the Concert Choir (Golden Voices) are open to all students who demonstrate musical ability as determined by audition.

ART COURSE DESCRIPTIONS

FPAR 0101. ART APPRECIATION. 1st and 2nd Semesters, Summer. Lect. 2, 2 credits. Understanding of the visual language through development of sensitivities and abilities necessary to create and communicate visually and varied approaches to the appreciation of aesthetic values.

FPAR 0102. CREATIVE ARTS. 1st and 2nd Semesters. Lab 2, 2 credits. Application of the visual elements to composition in several techniques by exploring the fundamentals of art. Prerequisite: FPAR 0101.

FPAR 0105. ART IN THE ELEMENTARY SCHOOL. 1st and 2nd Semesters. Lab 2, 2 credits. Art education relating to creative expression, personality growth and development of children. Methods and materials for teaching art in the elementary school. Prerequisite: Early Childhood, Elementary, Mental Retardation, and Occupational Therapy majors only.

FPAR 0110. THE BLACK AESTHETIC. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. A broad, comprehensive study of the significance of the arts for human life in order to develop a fuller understanding of the Humanities and the creative process in the western world with the emphasis on the black experience. Students will become aware of the development and importance of a black aesthetic as it relates to black consciousness.

FPAR 0203. AFRICAN ART HISTORY. 1st Semester. Lect. 3, 3 credits. Introductory survey of the arts of Africa. The course will cover a wide variety of forms, media, and techniques including the decorative arts, sculpture, masks, and architecture as well as analysis of technique and pattern design. The course is also concerned with ceremonies and rituals in which we find these art forms and the total African art experience including music and dance associated with these objects and their function in the context of African societies. Prerequisite: ENGL 0102, READ 0102.

FPAR 0204. AFRICAN-AMERICAN ART HISTORY. 2nd Semester. Lect. 3, 3 credits. A survey of the visual arts of African-Americans from slavery until the present day. Influence of African art during slavery, post-slavery, and the twentieth century will be emphasized. Prerequisite: FPAR 0203 or permission.

FPAR 0295. INDEPENDENT STUDIES IN ART. 1st and 2nd Semesters. 2-3 credits by arrangement. Individual exploration and skill development in particular art areas as well as research. Prerequisite: FPAR 0101, 0102 or equivalent and permission of instructor, GPA 2.5

required.

FPAR 0296. CRAFTS. 1st and 2nd Semesters, Summer. Lect. 2, Lab 3, 3 credits. Practical work in wood, metals, leather, clay, plastics, and jewelry. The course also deals with the sources and procurement of tools and materials.

MUSIC COURSES

1st Semester	**Cr.**	**2nd Semester**	**Cr.**
MUSC 102 Fundamentals of Music I	2	MUSC 103 Fun. of Music II	2
MUSC 104 Minor Applied	2	MUSC 105 Minor Applied	2
MUSC 110 Concert Choir	1	MUSC 111 Concert Choir	1
MUSC 112 Marching Band	1	MUSC 113 Concert Band	1
MUSC 118 Theory of Music I	3	MUSC 119 Theory of Music II	3
MUSC 210 Concert Choir	1	MUSC 211 Concert Choir	1
MUSC 208 Music Appreciation	2	MUSC 213 Concert Band	1
MUSC 212 Marching Band	1	MUSC 320 Basketball PEP Band	1
		MUSC 420 Basketball PEP Band	1

1st Semester	**Cr.**	**2nd Semester**	**Cr.**
MUSC 301 Pub Sch Music Methods	2	MUSC 302 Pub Sch Music Mat	2
MUSC 304 Afro American Music	3	MUSC 305 History of Jazz	3
MUSC 310 Concert Choir	1	MUSC 311 Concert Choir	1
MUSC 312 Marching Band *****	1	MUSC 313 Concert Band *****	1
MUSC 410 Concert Choir	1	MUSC 411 Concert Choir	1
MUSC 412 Marching Band	1	MUSC 413 Concert Band *****	1

MUSIC COURSE DESCRIPTIONS

MUSC 0100. JAZZ LAB BAND. 2nd Semester. Lab 2, 1 credit. A performance laboratory and activity for the practicing student of jazz and jazz derived music. Performance and study of jazz styles, composers, literature of jazz, rock and pop classifications. Open to all university students with basic instrumental proficiency.

MUSC 0102. FUNDAMENTALS OF MUSIC I. 1st Semester. Lect. 2, 2 credits. The fundamentals of notation, keys, scales, rhythmic reading and the basic essentials of music.

MUSC 0103. FUNDAMENTALS OF MUSIC II. 2nd Semester. Lect. 2, 2 credits. Diatonic melodies, modal scales, and melodic rhythm through syncopation, melodies with chromatic and tonality changes.

MUSC 0104. MINOR APPLIED. 1st Semester. Lab 1, 2 credit. Concentrated study in piano, voice, organ, or band instruments to be arranged by the student and teacher.

MUSC 0105. MINOR APPLIED. 2nd Semester. Lab 1, 2 credit. Prerequisite: MUSC 0104.

MUSC 0110. CONCERT CHOIR. 1st Semester. Lab 5, 1 credit. Development of sound vocal

practices and study of representative choral styles and composers.

MUSC 0111. CONCERT CHOIR. 2nd Semester. Lab 5, 1 credit. Continuation of the principles and practices of MUSC 0110.

MUSC 0112. MARCHING BAND. 1st Semester. Lab 5, 1 credit. Development of sound instrumental practices and participation in Marching Band.

MUSC 0113. CONCERT BAND. 2nd Semester. Lab 5, 1 credit. Continuation of MUSC 0112 and participation in Concert Band or Lab Band.

MUSC 0118. THEORY OF MUSIC I. 1st Semester. Lect. 3, Lab 2, 3 credits. A correlated course in music theory, including ear training, dictation, sight singing, analysis, written and keyboard harmony including primary and secondary chords. Prerequisite: MUSC 0103.

MUSC 0119. THEORY OF MUSIC II. 2nd Semester. Lect. 3, Lab 2, 3 credits. A continuation of Music 118 with emphasis on non-harmonic tones, seventh chords, altered chords, modulations, and twentieth century techniques. Prerequisite: MUSC 0118.

MUSC 0120. BASKETBALL PEP BAND. 2nd Semester. Lab1, 1 credit. An instrumental performance activity ensemble providing music, school spirit and entertainment (dance groups, etc.) at basketball games and other athletic events as requested during the second semester.

MUSC 0208. MUSIC APPRECIATION. 1st and 2nd Semesters. Lect. 2, 2 credits. A listening course open to all students which is designed to help the student understand and enjoy music through a study of basic elements forms and styles.

MUSC 0210. CONCERT CHOIR. 1st Semester. Lab 5, 1 credit. Continue development of sound vocal practices; study of representative choral practices; study of representative choral styles; and composers with emphasis on sight-reading and aural perception.

MUSC 0211. CONCERT CHOIR. 2nd Semester. Lab 5, 1 credit. Continuation of the principles and practices of MUSC 0210. Prerequisites: MUSC 0110, 0111, 0210.

MUSC 0212. MARCHING BAND. 1st Semester. Lab 5, 1 credit. Continuation of MUSC 0112 with participation in the Marching Band. Prerequisite: MUSC 0112 .

MUSC 0213. CONCERT BAND. 2nd Semester. Lab 5, 1 credit. Study of representative orchestral styles and composers with development of sound instrumental practices by participation in the Concert band.

MUSC 0220. BASKETBALL PEP BAND. 2nd Semester. Lab 1, 1 credit. Continuation of the principles and practices of MUSC 0120. Prerequisite: MUSC 0120.

MUSC 0301. PUBLIC SCHOOL MUSIC METHODS. 1st Semester, Summer. Lect. 1, Lab 1, 2 credits. Problems related to study, singing, and appreciation of music including methods for

teaching in the primary, intermediate and upper grades.

MUSC 0302. PUBLIC SCHOOL MUSIC MATERIALS. 2nd Semester, Summer. Lect. 1, Lab 1, 2 credits. Continuation of MUSC 0301. Student report-survey of available materials in their field and their uses.

MUSC 0304. AFRO-AMERICAN MUSIC. 1st and 2nd Semesters. Lect. 3, Lab 2, 3 credits. Continuation of the principles and practices of Music 303 with special emphasis on the contributions of black American composers and performers.

MUSC 0305. HISTORY OF JAZZ. 2nd Semester. Lect. 3, 3 credits. A listening survey course covering the chronological evolution of jazz from its West African and European roots, through its germination in America, to the present. Emphasis will be on the various styles and functions of jazz, particularly as they have been affected by changing social-cultural patterns during the twentieth century. Special attention is given to three subtopics: the effect of racial interaction on the music; women in jazz; and Alabama jazz musicians. Music literacy is not a prerequisite.

MUSC 0310. CONCERT CHOIR. 1st Semester. Lab 5, 1 credit. Application of vocal/choral practices in performance. Prerequisites: MUSC 0110, 0111, 0210, 0211.

MUSC 0311. CONCERT CHOIR. 2nd Semester. Lab 5, 1 credit. Continuation of performance practices outlined in MUSC 0310. Prerequisites: MUSC 0110, 0111, 0210, 0211, 0310.

MUSC 0312. MARCHING BAND. 1st Semester. Lab 5, 1 credit. Continuation of MUSC 0212 with participation in the Marching Band. Prerequisite: MUSC 0112, 0212.

MUSC 0313. CONCERT BAND. 1st Semester. Lab 5, 1 credit. Continuation of MUSC 0213 with participation in the Concert Band. Prerequisite: MUSC 0113, 0213.

MUSC 0320. BASKETBALL PEP BAND. 2nd Semester. Lab 1, 1 credit. Continuation of the principles and practices of MUSC 0220. Prerequisite: MUSC 0220.

MUSC 0410. CONCERT CHOIR. 1st Semester. Lab 5, 1 credit. Introduction to professional concert, solo and ensemble performance. Prerequisites: MUSC 0110, 0111, 0210, 0211, 0310, 0311.

MUSC 0411. CONCERT CHOIR. 2nd Semester. Lab 5, 1 credit. Continuation of performance practices outlined in MUSC 0410. Prerequisites: MUSC 0110, 0111, 0210, 0211, 0310, 0311, 0410.

MUSC 0412. MARCHING BAND. 1st Semester. Lab, 1 credit. Continuation of MUSC 0312 with participation in the Marching Band. Prerequisite: MUSC 0112, 0212, 0312.

MUSC 0413. CONCERT BAND. 2nd Semester. Lab 5, 1 credit. Continuation of MUSC 0313 with participation in the Concert Band. Prerequisite: MUSC 0113, 0213, 0313.

MUSC 0420. BASKETBALL PEP BAND. 2nd Semester. Lab 1, 1 credit. Continuation of the principles and practices of MUSC 0320. Prerequisite: MUSC 0320.

HISTORY & POLITICAL SCIENCE

MISSION

The Department of History and Political Science articulates to implement and improve programmatically its teaching, research, and service toward preparing and equipping well-rounded History and Political Science students with (1) requisite critical skills and competencies to effect learning in their respective disciplines, (2) completion of general education requirements, (3) and exposure to other educational enrichment activities on and off campus in readiness for graduate/professional studies, meaningful careers, life-long learning and service.

GOALS

- To make students aware of the major historical and political developments, around the world.
- To give students experience in reading the relevant literary sources and to acquire skills of discussing, presenting and writing about them.
- To equip students with the requisite tools and methodologies for critical thinking, inquiry, discovery, and sustained curiosity for learning, leadership, and service.
- To keep students current about the latest developments and trends in their respective disciplines
- To promote initially interdisciplinary collaboration between History and Political Science and, where possible, with other disciplines.
- To evaluate the performance of students across various criteria and measures with express aims of improving rates of retention, performance, and graduation.

HISTORY OBJECTIVES

- To provide students with requisite knowledge, skills and competencies in History.
- To provide various methodologies and perspectives of historiography and historical inquiry about world civilizations and historical developments.
- To engage in interdisciplinary collaboration between History and Political Science and other disciplines.
- To expose students to educational enrichment activities, programs, and practical experiences that expands opportunities for making choices about careers and life-long engagements.
- To prepare students for graduate/professional studies in History or other career fields of interest.

POLITICAL SCIENCE OBJECTIVES

- To provide students with opportunities to acquire and apply core knowledge, skills and competencies in Political Science.

- To engage students in conducting and presenting Political Science research projects based on various methodologies and perspectives.
- To engage students in interdisciplinary activities for the benefit of learning, collaborating and networking with other students.
- To assist students with identifying opportunities for educational enrichment beyond their academic work in the classroom.
- To motivate and encourage students to pursue graduate/professional programs.
- To facilitate students appreciation of an active and sustained life of intellectual and social activity.

HISTORY AND POLITICAL STUDENT LEARNING OUTCOMES

- Students will acquire and apply core knowledge, skills, and competencies, in History and Political Science.
- Students will be able to conduct and present history and political science research projects based on various methodologies and perspectives.
- Students will engage in interdisciplinary activities for the benefit of learning, collaborating and networking with one another.
- Students will be assisted and be able to identify opportunities for educational enrichment beyond their academic work in the classroom.
- Students will be motivated and encouraged to pursue graduate/professional program.
- Students will appreciate and embrace and active and sustained life of intellectual and social activity.

LIST OF DEGREES OFFERED

The Department of History and Political Science offers two undergraduate degrees: Bachelor of Arts, History and Bachelor of Arts, Political Science.

ACADEMIC PROGRAM DESCRIPTION

History

History faculty members have several aims. The World Civilization and History of the United States sequences seek to provide students perspective, for understanding the present world and a foundation for further historical study. More advanced history courses, available to students in all majors to fulfill social science elective requirements, are designed to broaden the educational experience by providing students a deeper understanding of the past. The major in history encompasses a range of specialized courses and training in the techniques of historical research and writing. History is an especially suitable major for students preparing for careers in teaching, museum and archival management, law, civil service, diplomatic service, and politics.

Political Science

Political Science faculty seeks to create and improve an environment whereby the interplay of scholarly discourse and practices ensue, and students acquire political knowledge through formal study of politics and engagement in extracurricular activities. Special concentrations in Pre-Law, International Affairs, and Public Policy broaden and enrich the educational experience of students. It is the primary objective to deepen their understanding of politics and its interfacing with other realities (economy, society, technology, etc.) at the local,

national, comparative and global levels. By taking core and elective courses and fulfilling other requirements, students acquire skills and competencies for advanced studies and career placement across diverse fields.

Members of the faculty of History **and** Political Science are committed to developing the abilities of students to be motivated about serious study and to think deeply about the importance of the mastery of their relevant subjects, character development, ethical values, and achievement with excellence. The faculty therefore undertakes its tasks and responsibilities with the idea that fully engaging students in their respective disciplines is indispensable to their wholesome growth and development and the commitment to life-long learning, service and leadership.

ADMISSION, RETENTION AND PROGRESSION POLICIES

University general policies on admission retention and progression apply. Students must meet the University admission and retention standards. Declared majors in History and Political Science must maintain the required minimum cumulative grade point average of C (2.0) to remain in the respective programs. Additionally, however, students must strive to achieve above the C (2.0) grade average in order to graduate and increase their chances for advanced studies and career placement. Each student is given a curriculum sheet and assigned to an advisor for advising, registration, and progress toward graduation on time.

GENERAL EDUCATION REQUIREMENTS

Humanities – 19 hours
English 0101 – 3
English 0102 – 3
Thirteen (13) additional humanities credit hours selected from,
THREE of the four discipline (Art, English, Music, Philosophy).
Social Sciences – 18 hours
History 0103 – 3
History 0104 – 3

Twelve (12) additional hours in the Social Sciences (Economics, History, Geography, Political Science, Psychology, Sociology, Social Work), six (6) of which must be in the same discipline. Political Science majors do fifteen (15) additional hours in the Social Sciences. Twelve (12) semester hours of French or twelve (12) hours of Spanish or Approved options for majors with the exception of English, Political Science, and History. 12 semester hours in a pattern of courses in the same discipline.

Mathematics-107-4

Minimum math level for History and Political Science is Math 107. However, depending on (ACT or SAT) score, student could place above. If student places above the minimum level, he/she must still do the required two levels of Math.

SPECIAL PROGRAMS

The Department of History and Political Science offers students a rich and diverse educational experience to broaden and deepen student learning outcomes:

Freshman Honors Program

Students with outstanding high school **GPA** and **SAT/ACT** scores will be placed in the Political Science Freshman Honors Program. The Freshman Honors Program consists of two rigorous courses offered during the Fall and Spring semesters.

Senior Honors Program

The Seniors Honors Program consists of two courses, POLS H462 and POLS H463. The prerequisite is POLS 205 and is usually taken in the second semester of a student's sophomore year. The course is open to all sophomores. Registration priority in the Honors Program is given to those juniors who are qualified candidates for admission into the Senior Honors seminar, POLS H462. Seniors entering their seventh semester who have attained at least a 3.00 grade point average overall and a 3.00 grade point average in Political Science are eligible for admission to this seminar.

Qualified juniors will be invited during the Spring semester of their junior year to enroll in POLS H462 to be offered during the ensuing Fall semester. Those who will be out of residence during one or both semesters of the junior year may enroll in the program with the consent of the Honors Coordinator and subject to review by the faculty in Political Science. Interested students will review their academic plans with the Honors Coordinator and receive his/her permission to enroll in a course that might properly prepare them for the Honors Program.

Political Science H462, a seminar usually taken in the Fall of the senior year, is devoted to the development of the honors thesis and includes close supervision of the writing stage of the project by a faculty supervisor selected by the Department Head and the student and subject to the faculty supervisor's consent. Close faculty supervision of the project occurs in POLS H462 in the form of an independent study course.

Completion of the thesis, its evaluation, and its defense before at least a three-member faculty committee warrants graduation with distinction in Political Science if a grade of A- or better is assigned to the student's thesis and his or her performance in POLS H462 and H463 is judged as outstanding. The intra-departmental Electives in Political Science are partially satisfied by the successful completion of the two courses of senior honors thesis seminar.

Successful completion of a senior honors thesis demands imagination, independence, and perseverance on the student's part. The accomplishments of students are recognized and are communicated to members of the American Political Science Association.

Minors in History and Political Science

The Department offers minors in three areas: the **Woodrow Wilson International Affairs Program**, **African Studies**, and **Public Policy Studies**. All three areas provide an interdisciplinary approach, through a variety of disciplines, for study, analysis, and research of international, regional, and national affairs. The suggested requirements are as follows:

International Affairs

A student who wishes to complete a **Minor in International Affairs** must earn at least 18 credit hours. The courses from which requirements are to be completed include: AGEC 501, 502, 602;

APSC 501; FPAR 203; BUSN 402, 412; ECON 412, 511, 512, 513; EDUC 422; ENGL 333, 501; GEOG 334; HIST 220, 221, 313, 345; MUSC 303; CSCI 100; POLS 320, 321, 330, 420, 421, SOCI 210, 360; and at least one (1) year of foreign language in one (1) language. *Course listing subject to change.*

African Studies

A student who wishes to complete a **Minor in African Studies** must earn at least 18 credit hours. The courses from which requirements are to be completed include: FPAR 203, ENGL 333, MUSC 303, PHIL 371, HIST 220, 221, 429, POLS 431, SOCI 210, 543, Project in professional area (AGEC, BUSN, or EVSC), and at least one (1) year of foreign language. *Course listing subject to change.*

Public Policy Studies

A student who wishes to complete a **Minor in Public Policy Studies** must earn at least 18 credit hours. The courses from which requirements are to be completed include: POLS 340, 341, 441, 350, 351, 450, 452, 454, SOWK 245, ECON 515, and POLS 465 (Internship Project in the public sector) *Course listing subject to change.*

GRADUATION REQUIREMENTS

University requirements for graduation apply to the department. Students must successfully complete all courses on the curriculum sheet of History or Political Science.

COOPERATIVE/INTERNSHIP/EDUCATIONAL RESEARCH OPPORTUNITIES

The Department offers Internship course (POLS 0465). Students with prior approval of faculty coordinator are placed with an organization on or off campus, at home, or abroad.

CLUBS/ORGANIZATIONS

Extra-curricular activities provide direct experience for enhancing or strengthening values in scholarship, leadership, and service. Under the leadership of students and guidance of faculty advisors, the following provide opportunities for educational enrichment:

Club/Organization(s)	**Focus**
FORENSICS	*Debating*
Frank Toland Historical Society	*History*
Model United Nations	*International Affairs*
Pi Sigma Alpha	*POLS Honors, Politics, Profession*
Political Science Student Association	*Politics, Profession*
Thurgood Marshall Pre-Law	*Law*

Even though these clubs are located in the department, they are open to all majors across campus.

HISTORY

COURSE DESCRIPTIONS

Introductory Courses

HIST 0103/0104. WORLD CIVILIZATION. 1st and 2nd Semesters, Summer. Lect. and Disc. 3, 3 credits each. A study of the origins and development of world civilizations. Particular emphasis is given to the interrelationship among the various civilizations and to the development of ideas and institutions most relevant to the modern world. History 0103 concludes about 1650 A.D. History 0104 covers the period from about 1650 A.D. to the present.

Survey Courses

HIST 0210/0211. HISTORY OF THE UNITED STATES. 1st and 2nd Semesters respectively, Summer. (HIST 0210). 1st and 2nd Semesters, Summer (HIST 0211only). Lect. and Disc. 3, 3 credits each. A study of social, political and economic developments in North America from the Age of Discovery to present times. History 0210 concludes with the end of Reconstruction, 1877 and History 0211 covers the period from 1877 to the present. Prerequisite: ENGL 0101.

HIST 0220/0221. HISTORY OF AFRICA. 1st and 2nd Semesters respectively. Lect. and Disc. 3, 3 credits each semester. A historical consideration of Africa from earliest times to the present. History 0220 focuses on the major economic ,intellectual, political, religious and social developments on the African continent from the origins of man to 1600 A.D. History 0221 analyzes the Atlantic slave trade, colonialism, nationalist movements, and neocolonialism on the African continent from 1600 A. D. to the present. Prerequisites: HIST 0103 and HIST 0104

Advanced Courses

HIST 0304. SOUTH AFRICA--UNITED STATES: A COMPARATIVE HISTORY. Alternate 2nd Semesters. Lect. and Disc. 3, 3 credits. A study of the similarities and differences between the histories of South Africa and the United States. The course will begin during the age of frontier expansion, an era costly to the indigenous peoples of the Cape Colony and the United States. The labor system that evolved plus the careers of segregation and apartheid will be studied. Finally, the present day strains resulting from economic and political relations between the two countries will be analyzed. Prerequisites: Any six-hour combination of HIST 0103, 0104, 0210, 0211.

HIST 0307. ROOTS AND DEVELOPMENT OF THE AFRICAN AMERICAN CHURCH TO 1877. Alternate 1st Semesters. Lect. and Disc. 3, 3 credits. This course examines the historical roots and the development of the African American Church through Reconstruction. Special attention is given to such prominent figures as George Lyle and Richard Allen and how the African American Church symbolized freedom even during slavery. Prerequisites: 3 hours of history or sophomore standing.

HIST 0308. THE AFRICAN AMERICAN CHURCH FROM 1877 TO THE PRESENT. Alternate 2nd Semesters. Lect. and Disc. 3, 3 credits. This course examines the expansion, development and contributions the African American Church has made since the end of Reconstruction. Special attention will be given to the role the Church played in the Post-

Reconstruction era and in the Northern Migrations and the Civil Rights Struggles. Prerequisite: 3 hours of history or sophomore standing.

HIST 0309. MARTIN AND MALCOLM. Alternate 1st Semesters. Lect. and Disc. 3, 3 credits. This course examines the social, cultural and religious context out of which Martin Luther King and Malcolm X emerged. Special attention will be given to their distinct and common perspectives on the African American situation in America. Prerequisites: 3 hours of history or sophomore standing.

HIST 0312. CONSTITUTIONAL HISTORY OF THE UNITED STATES. Alternate 2nd Semesters. Lect. and Disc. 3, 3 credits. A descriptive and analytical examination of American constitutional developments and their relationship to the political, social, economic, and geographical setting. Prerequisites: Any six-hour combination of HIST 0103, 0104, 0210, 0211.

HIST 0313. DIPLOMATIC HISTORY OF THE UNITED STATES. Alternate 1st Semesters. Lect. and Disc. 3, 3 credits. A survey of the diplomacy of the United States from the independence period up to the present. Prerequisites: Any six-hour combination of HIST 0103, 0104, 0210, 0211.

HIST 0314. CIVIL WAR AND RECONSTRUCTION: THE U.S. 1850-1877. 1st Semester. Lect. and Disc. 3, 3 credits. Central themes in the sectional struggle are examined and related to the coming of the war and the war itself, and to the era of reconstruction. Prerequisites: Any six-hour combination of HIST 0103, 0104, 0210, 0211.

HIST 0315. WOMEN IN THE HISTORY OF THE UNITED STATES. 1st Semester. Lect. and Disc. 3, 3 credits. The course will concentrate on the various roles, strategies and achievements of women in the United States from colonial times to the present. The course will analyze the difficulties encountered by women who belong to beleaguered ethnic groups. Women will be studied in the context of their interactions with the political, social, religious and aesthetic institutions of American society. Prerequisites: Any six-hour combination of HIST 0103, 0104, 0210, 0211.

HIST 0316/0317. AFRO-AMERICAN HISTORY. 1st and 2nd Semesters respectively. Lect. and Disc. 3, 3 credits each semester. An inquiry into the background and development of Afro-Americans with emphasis upon their role in the political, social and economic development of the United States and an interpretation of selected major forces in the Black experience in the United States. History 0316 will analyze the period from the slave trade until 1877. History 0317 will cover the period from 1877 to the present. Prerequisite: Any six-hour combination of HIST 0103, 0104, 0210, 0211.

HIST 0318. AFRO-AMERICAN SCIENTISTS AND INVENTORS. 2nd Semester. Lect. and Disc 3, 3 credits. A survey of the accomplishments of Afro-American scientists and inventors with emphasis on the social and technological significance of their accomplishments. Prerequisites: Any six-hour combination HIST 0103, 0104, 0210, 0211.

HIST 0342. THE SIXTEENTH-CENTURY ORIGINS OF PROTESTANT CHRISTIANITY. 2nd Semester. Lect. and Disc. 3, 3 credits. An examination of the fifteenth and sixteenth-century religious developments in their social, political, and cultural context, which were the genesis of and gave shape to Protestant Christianity. Much attention will be given to the lives of Martin Luther and John Calvin. Prerequisites: 3 hours of history or sophomore standing.

HIST 0345. MILITARY AND DIPLOMATIC HISTORY. 1st Semester. Lect. and Disc. 3, 3 credits. A survey of military and diplomatic history from the outbreak of the French Revolution until the Post-World War II era. The course will concentrate not only on wars and their strategies and tactics but also on the diplomatic and political circumstances in which wars begin and end. Technological, intellectual, societal and economic factors will be considered to the extent they influence European military and diplomatic affairs. Prerequisite: ENGL 0102.

HIST 0346. THE COLD WAR AND BEYOND. 2nd Semester. Lect. and Disc. 3, 3 credits. An examination of the origins and course of the Cold War from its post- World War II roots to its end with the collapse of the Soviet Union. Special attention will be given to post-World War II conferences and confrontations, superpower relations and international crises, nuclear diplomacy, the Cold War's impact on the Third World, and the consequences of the Cold War's end. Prerequisite: ENGL 102.

Research and Independent Study Courses

HIST 0401. RESEARCH IN HISTORY. 1st and 2nd Semesters. 3 credits. The course will be tutorial in format and will cover the philosophy of history, historical method and historiography. Students participate by writing analytical and research papers involving representative theoretical and methodological problems. Prerequisites: Any six-hour combination of HIST 0103, 0104, 0210, 0211. Open to History Majors only.

HIST 0405. ORAL HISTORY. On Demand. Lect. and Disc. 3, and field work, 3 credits. A limited number of selected students will participate in a statewide oral history project aimed at collecting and analyzing materials relating to the history of the Black experience in Alabama. Prerequisites: Any six-hour combination of HIST 0103, 0104, 0210, 0211.

HIST 0419. INDEPENDENT STUDY IN UNITED STATES HISTORY. On Demand. 3 credits. The course will be tutorial in format and will consist of guided reading research, and writing on a topic or topics selected by the student and approved by the instructor. Prerequisites: standard prerequisite and HIST 0210/021

HIST 0429. INDEPENDENT STUDY IN AFRICAN HISTORY. On Demand. 3 credits. The course will be tutorial in format and will consist of guided reading, research, and writing on a topic or topics selected by the student and approved by the instructor. Prerequisites: HIST 0220 and 0221.

HIST 0449. INDEPENDENT STUDY IN EUROPEAN HISTORY. On Demand. 3 credits. The course will be tutorial in format and will consist of guided reading, research writing on a topic or topics selected by the student and approved by the instructor. Prerequisites: HIST 0103 and 0104.

POLITICAL SCIENCE COURSE DESCRIPTIONS

Group I – Political Theory

POLS 0208. ETHICS AND POLITICS. 2nd Semester. Lect. 3, 3 credits. Ethical issues arising in the conduct of political affairs. Prerequisite: None

POLS 0310 EARLY POLITICAL THEORY. 1st Semester. Lect. 3, 3 credits. Development of Western Political thought from Plato to the 16th Century, with emphasis on major political philosophers. A systematic analysis of the nature and concept of state. An introductory course. Prerequisite: None

POLS 0311. MODERN POLITICAL THEORY. Offered in response to need and available faculty. Lect. 3, 3 credits. An examination of Western Political Philosophy from the 16th Century to the present. Development and Change in the major contemporary political ideologies including communism, corporatism, fascism, liberalism, socialism, and consciencism.

POLS 0411. AMERICAN POLITICAL THEORY. Offered in response to need and available faculty. Lect. 3, 3 credits. A survey of the development of American ideas concerning political authorities from the colonial days to the present. Prerequisite: Permission of Instructor.

Group II – American Politics

POLS 0100. FRESHMAN SEMINAR. 1st Semester. Lect. 3, 3 credits. Topics vary each semester; an interdisciplinary course that targets the resolution of anomalies in political science. Special attention will be given to writing and critical thinking. Restricted to Majors in Political Science.

POLS 0200. INTRODUCTION TO POLITICAL SCIENCE. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. An introduction to the nature and principles of political science. A survey of methods, assumptions, and scope of the systematic study of political institutions and processes vis-a-vis the current trends in political analysis.

POLS 0201. AMERICAN GOVERNMENT AND POLITICS. 2nd Semester. Lect. 3, 3 credits. An introduction to the institutions and practices of the political life of the United States dealing with the elite, political recruitment, pressure groups, elections, public opinion, voting behavior and political parties and processes; legislative, executive and judicial politics; bureaucratic politics and community political systems.

POLS 0202. AFRICAN-AMERICAN POLITICS. 1st Semester. Lect. 3, 3 credits. An inventory of the political, cultural, economic, social, psychological and religious factors confronting African- Americans in the American Political System.

POLS 0204. POLITICS AND THE MEDIA. (Offered in response to need and available faculty). Lect.3, 3 credits. Analysis of the nature, organization, and products of the mass media (especially

the movie, television, and newspaper industries) as they affect the political systems, political processes, institutions, and people of the United States and other nations.

POLS 0209. ETHNIC POLITICS. On Demand. Lect. 3, 3 credits. This course is concerned with the politics of Native Americans, Spanish Speaking Americans, Oriental Americans and the largest minorities, and that of women.

POLS 0300. POLITICAL PARTIES. On Demand. Lect. 3, 3 credits. Organizations, functions and practices of political parties primarily in the United States addressing campaign functions, membership problems, political finance and policy-making processes. Influence of political parties in governments and the importance of the two-party system in American government; U.S. party responsibilities compared with parties in other countries; interest groups and party politics. Prerequisite: POLS 0200, 0201.

POLS 0303. LEGISLATIVE POLITICS. On Demand. Lect. 3, 3 credits. Historical development of Congress; functions of legislatures, organization and procedure of legislative bodies, current legislative and legislation trends; problems and principles of American Legislatures. Prerequisite: POLS 0200 and 0201 or Permission of Instructor.

Group III – Comparative Government

POLS 0319. POLITICS OF DEVELOPING COUNTRIES. On Demand. Lect. 3, 3 credits. Institutional processes and the culture of selected countries in Africa, Asia, and Latin America. Prerequisite: Permission of Instructor.

POLS 0330. COMPARATIVE GOVERNMENTS. 2nd Semester. Lect. 3, 3 credits. The structure and dynamics of the principal types of political systems in the world. Contemporary states will be studied for the purposes of illustration. Recent issues and trends in comparative political systems including methodology in research. Prerequisite: POLS 0200, 0201.

POLS 0331. CONTEMPORARY SOCIAL AND POLITICAL DEVELOPMENT IN THE ISLAMIC WORLD. On Demand. Lect. 3, 3 credits. An analysis of contemporary events in Iran, Afghanistan, Pakistan, Iraq, and the Arabian Peninsula; the political manifestation of Shi'ia and Sunni Islam; security in the Arab world and its relationship to global politics. Prerequisite: Permission of Instructor.

POLS 0332. CONTEMPORARY LATIN AMERICAN POLITICS. On Demand. Lect. 3, 3 credits. An analysis of contemporary government, political culture, and political changes in Latin American countries such as Peru, Nicaragua, Brazil, Argentina, etc. Prerequisite: Permission of Instructor.

POLS 0333. GOVERNMENT AND POLITICS IN RUSSIA. On Demand. Lect. 3, 3 credits. Analysis of Russia, Russian Political history, emphasizing the sources of change, stability, and instability in government and politics. Prerequisite: Permission of Instructor.

POLS 0334. CONTEMPORARY JAPANESE POLITICS. On Demand. Lect. 3, 3 credits. Introduction to political change in postwar Japan. Foundations of the modern industrial state, electoral politics, policy making and bureaucracy, defense, foreign policy, and foreign trade. Prerequisite: Permission of Instructor.

POLS 0335. CONTEMPORARY CHINESE POLITICS. On Demand. Lect. 3, 3 credits. Introduction to political change in postwar China; single party states; political leadership; and opposition groups. Prerequisite: Permission of Instructor.

POLS 0430. EUROPEAN POLITICAL SYSTEMS. On Demand. Lect. 3, 3 credits. Major governments of Europe, Russia, and constitutional structure and developments. Comparative analysis of the systems of government. Prerequisite: POLS 0200, 0201 or Permission of Instructor.

POLS 0431. AFRICAN POLITICS. 1st Semester. Lect. 3, 3 credits. Major governments of Africa, and a comparative analysis of the structure and dynamics of government. Prerequisite: Permission of Instructor.

POLS 0432. CARIBBEAN POLITICS. On Demand. Lect. 3, 3 credits. Major governments of the Caribbean states and the study of small democracies; an exploration and analysis of policy-making and dependency.

Group IV – Public Law

POLS 0340. INTRODUCTION TO PUBLIC LAW. 1st Semester. Lect. 3, 3 credits. Nature of law, public and private; the development of the Anglo-American legal system; the theories of law or jurisprudence; background to the professional study. Prerequisites: POLS 0200, 0201.

POLS 0341. AMERICAN CONSTITUTIONAL LAW. On Demand. Lect. 3, 3 credits. Constitutional question concerning the separation of powers, federalism, the relationship between government and property; power to tax, spend, and regulate commerce and conduct foreign relations. The protection of civil and political rights and liberties under the Constitution. Prerequisite: POLS 0200, 0201 or Permission of Instructor.

POLS 0441. THE JUDICIAL PROCESS. (Offered in response to need and available faculty). Lect. 3, 3 credits. The history, procedures and role of the Supreme Court in its legal, constitutional, and political aspects. Decisions of the Court, historical and current commentaries. Prerequisite: Juniors and Seniors only.

Group V – Public Administration and Public Policy

POLS 0350. STATE AND LOCAL GOVERNMENT. On Demand. Lect 3, 3 credits. Development of state constitutions, the political, administrative and judicial systems of state and

county government; and relations between state and local government, with special emphases on Alabama. Prerequisite: Permission of Instructor.

POLS 0351. MUNICIPAL GOVERNMENT. On Demand. Lect. 3, 3 credits. A study of modern municipality in the United States; legal aspects of city government; local election problems; types of municipal government; problems of metropolitan areas; relationship of the cities to other units; problems of city government today; zoning; planning; housing programs; revenues and urban renewals. Prerequisites: Permission of Instructor.

POLS 0450. INTRODUCTION TO PUBLIC ADMINISTRATION. 1st Semester. Lect. 3, 3 credits. An introduction to the role of administration in the governmental process considering principles of administrative organizations, methods of administrative control, management, including planning personnel, finance and law. Prerequisite: POLS 0200, 0201.

POLS 0452. PUBLIC POLICY. On Demand. Lect. 3, 3 credits. A general introduction to the theories, issues, and application of the public policy with special regard for classicists and the development of American institutions. Prerequisite: Permission of Instructor.

POLS 0454. ENVIRONMENTAL POLITICS. (Offered in response to need and available faculty). Lect. 3, 3 credits. An examination of the relationship between governments, political interest groups, and the exploration and management of variable ecosystems. Prerequisite: Permission of Instructor.

Group VI – Methods of Political inquiry

POLS 0203. CYBERSPACE AND POLITICAL SCIENCE. 1st Semester. Lect. 3, 3 credits. An examination of computer applications in Political Science with special attention to the acquisition of evidence, tools of analysis via the worldwide web, Internet, teleconferencing, and specialized library sites in Political Science for purposes of research and political analysis.

POLS 0205. CONDUCT OF POLITICAL INQUIRY. 2nd Semester. Lect. 3, 3 credits. This course builds upon the basic research techniques taught in POLS 0203. Students will be required to do one major research project in the field and will conduct computer and statistical analyses of political data.

POLS 0207. GAME THEORY AND POLITICAL INQUIRY. On Demand. Lect. 3, 3 credits. Theory of games as a tool to understand strategic behavior of political actors. Applications to legislative politics, bureaucratic behavior, trade, and international cooperation and conflict. Prerequisite: Permission of Instructor.

Group VII – International Politics

POLS 0320. INTERNATIONAL POLITICS. 1st Semester. Lect. 3, 3 credits. Interaction of "great powers." national interest vs. international politics; the influence of balance of power and power politics; imperialism, neocolonialism, prestige and problems in international relations.

POLS 0321. INTERNATIONAL ORGANIZATIONS On Demand. Lect. 3, 3 credits. An examination of the historical development of international organizations from the Concert of Europe to The United Nations. Analysis of contemporary international organizations, their functions, problems and prospects in the context of the current world situation. Emphasis on the United Nations. Prerequisite: Permission of Instructor.

POLS 0322. INTERNATIONAL SECURITY. On Demand. Lect. 3, 3 credits. Local and regional conflicts, the United States-Russian strategic balance, theories of deterrence and defense, prospects for arms control. Prerequisite: Permission of Instructor.

POLS 0323. INTERNATIONAL POLITICAL ECONOMY. On Demand. Lect. 3, 3 credits. The interplay between politics and economics in international trade, money, investment, and technology flows among advanced capitalist societies, between underdeveloped and advanced industrialized countries. Prerequisite: Permission of Instructor.

POLS 0420. INTERNATIONAL LAW. On Demand. Lect. 3, 3 credits. Natural and historical development of international law; rules of international law; the question of sovereignty; recognition of states and governments. Jurisdiction; settlements in the International Court of Justice; war, aggression and neutrality. Prerequisite: Permission of Instructor.

POLS 0421. AMERICAN FOREIGN POLICY. On Demand. Lect. 3, 3 credits. A systematic study of the United States Foreign Policy from President Washington to the present. Prerequisite: POLS 0200, 0201 or Permission of Instructor.

POLS 0422. INTERNATIONAL ENVIRONMENTAL LAW. (Offered in response to need and available faculty). Lect.3, 3 credits. The natural and historical development of international environmental law; the question of the global commons such as the deep sea, the upper atmosphere, genetic resources; international organizations and environmental policy. Prerequisite Permission of Instructor.

POLS 0423. SPACE AND INTERNATIONAL RELATIONS. On Demand. Lect. 3, 3 credits. The exploration and exploitation of outer space for international commercial and military purposes with special attention given to international cooperation. Prerequisite: Permission of Instructor.

POLS 0424. ARMS CONTROL AND NATIONAL SECURITY. On Demand. Lect. 3, 3 credits. The evolution of nuclear weapons and strategy and of global defense policy toward the Soviet Union and other adversaries; the arms control process and nonproliferation. Prerequisite: Permission of Instructor.

Group VIII – Senior Seminar, Honors and Internships.

POLS 0460. SEMINAR. UNDERGRADUATE SEMINAR. 1st Semester, Summer 3 credits. Offered only to majors in Political Science with A senior classification. Prerequisite: Permission of Instructor.

POLS 0461. READINGS IN POLITICAL SCIENCE. 2nd Semester, Summer 3 credits. Prerequisite: Senior Standing or permission of Instructor.

POLS H462. SENIOR HONORS SEMINAR. 1st Semester. 3 credits. Part I of a two-semester sequence leading to the development of an undergraduate honors thesis.

POLS H463. SENIOR HONORS SEMINAR. 2nd Semester. 3 credits. Part II of a two-semester sequence that provides students with a research practicum, the writing of an undergraduate thesis, and oral examinations.

POLS 0464. (I-IV) AMERICAN UNIVERSITY WASHINGTON PROGRAM. On Demand. Four Courses. Four Transfer credits. This course number represents transfer credit for courses taken at American University in the Washington Semester Program: Washington Semester Seminar I, Washington Semester Seminar II, a Washington Semester Internship, and an elective or research project. If any of these courses are taken outside of the Political Science Department at American University, approval of the Department Head of the Department of Political Science at Tuskegee University is required.

POLS 0465. SENIOR INTERNSHIP. 1st Semester, Summer. 3 credits. 250 clock hours during the Summer or 1st Semester with faculty guidance and agency supervision. Contract, weekly logs, and completion of research project required. Prerequisite: Permission of faculty coordinator.

CURRICULUM IN HISTORY

Freshman Year

First Semester	CR	Second Semester	CR
ENGL 0101Comp#*cc	3	ENGL 0102 Comp3cc	3
HIST 0103 World CIV. cc	3	HIST 0104 World Civ.cc	3
MATH 0107 cc	4	MATH 0108	4
UNIV 0101	1	UNIV 0102	1
CSCI 100 or 150 cc	3	Foreign Language+	3
Foreign Language+	3	Natural SSCI ELECTIVE**cc	3
Total Credit Hours	**18**	**Total Credit Hours**	**18**

Sophomore Year

First Semester	CR	Second Semester	CR
HIST 210	3	HIST 211	3
SOC/BEH** cc	3	SOC/BEH** cc	3
HUM/FA: FPAR or MUSC** cc	2	HUM/FA: ENGL 205 or 2 cc	3
Natural Sci Elective** cc	3	Natural Sci Elective	3
HUM/FA: PHIL** cc	3	Foreign Language+	3

Foreign Language+	3		
Total Credit Hours	**15**	**Total Credit Hours**	**17**

Junior Year

First Semester	**CR**	**Second Semester**	**CR**
HIST 401	3	History Elective (Block 2)	3
Hist Elective (Block 1)	3	History Elective	3
SOWK 0300	3	Social Science Elective**	3
Social Science Elective**	3	Humanities Elective	3
Free Elective	3	Free Elective	3
Total Credit Hours	**15**	**Total Credit Hours**	**15**

Senior Year

First Semester	**CR**	**Second Semester**	**CR**
History Elective (Block 3)	3	History Elective (Block 4)	3
History Elective	3	History Elective	3
Humanities Elective	3	Social Science Elective	3
Social Science Elective	3	Humanities Elective	3
Free Elective	3	Free Elective	3
Total Credit Hours	**15**	**Total Credit Hours**	**15**

**Placement by test results +Same Language #Minimum grade of "C" required **Choose from Core (cc)*

MATHEMATICS

The mission of the Department of Mathematics is to provide each student with mathematical skills needed to function and solve problems in a variety of fields as well as to produce graduates majoring in mathematics who can go on to complete higher degrees in mathematics, and/or purse successful careers in government, industry, or teaching.

The minimum mathematics required of all entering freshman is MATH 107. In certain instances, it may be determined that a student has the necessary background to begin mathematics studies in a course above MATH 107. This may mean that a student need not take the MATH 107. Under these circumstances, the student must consult his/her departmental advisors concerning replacing the credit hours with other courses. The courses used for replacing these credit hours must come from the natural science division, that is, from biology, chemistry, physics, or mathematics. If a mathematics course is used for replacing credit hours, then it must be one that is considered to be at a higher level than MATH 107. Also, a mathematics course(s) used for replacement credits must be at a higher level than the mathematics courses required in the major.

The Department of Mathematics offers a curriculum which leads to the degree of Bachelor of Arts in Mathematics. The objective of this curriculum is to prepare students for graduate studies in Mathematics, Computer Science and related fields, and for a career in government, industry or teaching. In the mathematics curriculum, students are required to take thirty-two hours of mathematics exclusive of the general education mathematics requirements. A minimum grade of "C" is required in each of these mathematics courses. Electives could include courses in

computer science, statistics, and applied mathematics. (All electives must be approved by the department.) Mathematics majors are strongly encouraged to take courses in physics as part or all of the natural science requirement.

GENERAL EDUCATION/SPECIFIC DEGREE REQUIREMENTS

A student majoring in mathematics must complete all courses that are considered a part of the General Core Curriculum Requirement.

Humanities/Fine Arts – 19 hours

English 101 – 3
English 102 – 3
Thirteen (13) additional humanities credit hours selected from THREE of the four disciplines (Art, English, Music, Philosophy). There must be one course taken from a select group of philosophy courses and there must be one course taken from a select group of English courses.

Social Sciences – 18 hours

History 103 – 3
History 104 – 3
Twelve (12) additional hours in the Social Sciences (Economics, History, Geography, Political Science, Psychology, Sociology, Social Work), six (6) of which must be in the same discipline.

Foreign Language or Option – 12 hours

Twelve (12) semester hours of French or twelve (12) hours of Spanish
or
An approved option of 12 semester hours in a pattern of courses in the same discipline.

Sciences and Mathematics – 20 hours

Mathematics 107 – 4
Mathematics 108 – 4
Twelve (12) additional hours from any of the Sciences or Math courses beyond Math 110. (Exceptions may result from mathematics placement).

Computer Science – 3 hours

Total general education hours – 72 hours

Mathematics Courses – 32 hours

MATH 207/208/209 Analytic Geometry & Calculus I, II, & III	12 hrs
MATH 307 Differential Equations	3 hrs
MATH 407 Linear Algebra & Matrix Theory	3 hrs

MATH 408 Modern Algebra	3 hrs
MATH 417 Modern Geometry	3 hrs
MATH 451 & 452 Seminar I & II	2 hrs
MATH 505 Advanced Calculus I	3 hrs
MATH 506 Adv Calc II or MATH 510 Complex Variables	3 hrs

Free Electives – 16 hours

University Basic Requirements – 4 hours

Physical Education (Two activity type courses) - 2
Orientation (OREN 100 and OREN 101) - 2

Total Minimum Hours Required For Graduation - 124 hours

CURRICULUM FOR MATHEMATICS MAJOR

Freshman Year

Fall Semester		**Spring Semester**	
*English 101 **(CORE)**	3	*English 102 **(CORE)**	3
*$Mathematics 107 (Coll Alg & Trig I) **(CORE)**	4	*$Mathematics 108 (Coll Alg & Trig II)	4
History 103 **(CORE)**	3	History 104 **(CORE)**	3
Physical Education (Activity)	1	Physical Education (Activity)	1
Freshman Orientation 100	1	Freshman Orientation 101	1
Nat Sci **(CORE-Biol/Chem/Phys)**	4	Nat Sci (**CORE-Biol/Chem/Phys)**	4
	16	+Humanities **(CORE-MUSC or FPAR)**	2
			18

Sophomore Year

Fall Semester		**Spring Semester**	
*$Mathematics 207 (Cal I)	4	*$Mathematics 208 (Cal II)	4
#Social Science **Core-Same Area)**	3	#Social Science **(Core-Same Area)**	3
+Humanities (**CORE-English Only)**	3	+Humanities (**CORE-PHIL Only)**	3
Natural Science	4	CSCI **(Core-Only Any CSCI)**	3
Foreign Language or Option	3	Foreign Language or Option	3
	17		16

Junior Year

Fall Semester		**Spring Semester**	
*Mathematics 209 (Cal III)	4	*Mathematics 307 (Diff Equat)	3
*Mathematics 407 (Lin Alg)	3	*Mathematics 408 (Mod Algebra)	3
Foreign Language or Option	3	Foreign Language or Option	3
#Social Science	3	Free Elective	3
+Humanities	2	Free Elective	3
	15		15

Senior Year

Fall Semester		**Spring Semester**	
*Mathematics 505 (Adv Cal I)	3	*Mathematics 417 (Mod Geometry)	3
*Mathematics 451 (Seminar I)	1	*Mathematics 506 (Adv Cal II)	
#Social Science	3	or	
Electives	7	*Mathematics 510	
	14	(Complex Variables)	3
		*Mathematics 452 (Seminar II)	1
		+Humanities	3
		Free Elective	3
			13

#In addition to History 103 and History 104, six (6) hours must be in the same area.
*A minimum grade of "C" is required in all mathematics courses and in English 101 and English 102.
+Humanities Elective courses must be selected from at least 3 different disciplines.
$Either one of these courses may be used to satisfy the mathematics core requirement.

Course Descriptions

MATHEMATICS COURSES FOR UNDERGRADUATES

MATH 0107. COLLEGE ALGEBRA & TRIGONOMETRY I. 1st and 2nd Semesters, Summer. Lect. 4, 4 credits. Sets; real numbers; absolute value; inequalities; relations and functions; polynomial functions, systems of linear equations, exponential and logarithmic functions; mathematical induction; finite sums and series. Prerequisite: Placement or minimum grade of “C” in MATH 0106.

MATH 0108. COLLEGE ALGEBRA & TRIGONOMETRY II. 1st and 2nd Semesters, Summer. Lect. 4, 4 credits. Circular functions; trigonometric functions; vectors in the plane; complex numbers; theory of equations; analytic geometry. Prerequisite: Minimum grade of “C” in MATH 107 or Departmental Approval.

MATH 0110. PRECALCULUS. 1st Semester, 2nd Semester on Demand. Lect. 4, 4 credits. An accelerated treatment of content covered in MATH 0107 and 0108. Prerequisite: Placement or Departmental Approval. A student who has previously registered for MATH 0107 and/or MATH 0108 will not be allowed to register for this course. Also, students will not be allowed to use both

Math 110 and Math 107 or both Math 110 and Math 108 to fulfill degree requirements in any major.

MATH 0200. MATHEMATICAL CONCEPTS AND APPLICATIONS. 1st and 2nd Semesters. Lect. 3, 3 credits. This course is designed to reinforce ARMY ROTC cadets' knowledge of mathematical concepts learned earlier in their mathematics courses. Topics in this course include sets, whole numbers, fractions and rational numbers, decimals, number theory, metric system, variable expressions, factoring, systems of equations, graphing, geometry, exponents and radicals, matrices and quadratic equations. Applications will be emphasized. Prerequisite: Minimum grade of "C" in MATH 0105. Students will not be allowed to use this course to fulfill degree requirements in any major.

MATH 0207. ANALYTIC GEOMETRY & CALCULUS I. 1st and 2nd Semesters, Summer. Lect. 4, 4 credits. Introduction to analytic geometry; functions; limits; derivatives and integrals with some applications. Prerequisite: Minimum grade of "C" in MATH 0108 or MATH 0110 or Departmental Approval. Students will not be allowed to use both MATH 0207 and MATH 0227 to fulfill degree requirements in any major.

MATH 0208. ANALYTIC GEOMETRY & CALCULUS II. 1st and 2nd Semesters, Summer. Lect. 4, 4 credits. Further discussion of derivatives and integrals with applications; techniques of integration; parametric equations and polar coordinates. Prerequisite: Minimum grade of "C" in MATH 0207.

MATH 0209. ANALYTIC GEOMETRY & CALCULUS III. 1st and 2nd Semesters, Summer. Lect. 4, 4 credits. Solid analytic geometry; partial differentiation; vectors; multiple integrals; infinite series. Prerequisite: Minimum grade of "C" in MATH 0208.

MATH 0227. INTRODUCTORY CALCULUS. 1st and 2nd Semesters, Summer. Lect. 4, 4 credits. Primarily designed for students in Architecture and the Social Sciences. Emphasis is on application of elementary differentiation and integration. Prerequisite: Minimum grade of "C" in MATH 0107 or MATH 0110 or Departmental Approval. Students will not be allowed to use both MATH 0207 and MATH 0227 to fulfill degree requirements in any major.

MATH 0304. HISTORY OF MATHEMATICS. 1st Semester. Lect. 3, 3 credits. The history of mathematics from antiquity and medieval times to modern times. Some topics of interest are the exciting developments in fractal theory and number theory. This historical development of mathematics covers the intellectual, historical, philosophical, and sequential nature of mathematics and the interrelated nature of the various branches of mathematics. Anyone interested in gaining a historical perspective on their knowledge of mathematics or in teaching mathematics will benefit from this course. Prerequisite: Junior or senior standing.

MATH 0307. DIFFERENTIAL EQUATIONS. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. Solution of ordinary differential equations with applications to geometry, physics, and engineering; solutions in power series; systems of linear differential equations; introduction to Laplace Transforms. Corequisite: MATH 0209 and a minimum grade of "C" in MATH 0208.

MATH 0401. INDEPENDENT STUDY. 1st and 2nd Semesters. 1-3 credits. Designed to provide an opportunity for outstanding students to study advanced topics not covered in required courses. The student is expected to do most of the work on his own under the supervision and with the assistance of a member of the mathematics faculty. Prerequisite: Junior standing and Departmental Approval.

MATH 0407. LINEAR ALGEBRA & MATRIX THEORY. 1st Semester, 2nd Semester and Summer on Demand. Lect. 3, 3 credits. Systems of linear equations; vector spaces; matrices; determinants; bilinear and quadratic functions and forms; linear transformations. Prerequisite: Minimum grade of "C" in MATH 0208.

MATH 0408. MODERN ALGEBRA. 2nd Semester. Lect. 3, 3 credits. Elementary theory of groups; rings; fields; and related topics. Prerequisite: Minimum grade of "C" in MATH 0407 or Departmental Approval.

MATH 0417. MODERN GEOMETRY. 2nd Semester. Lect. 3, 3 credits. Selected topics from Euclidean geometry; introduction to non-Euclidean geometry and projective geometry. Prerequisite: Junior standing and Departmental Approval.

MATH 0451. SEMINAR I. 1st Semester. Lect. 1, 1 credit. Required of all Mathematics majors. Presentation followed by discussion of various topics in Mathematics. Will involve students, faculty, and visiting lectures.

MATH 0452. SEMINAR II. 2nd Semester. Lect. 1, 1 credit. Continuation of MATH 0451.

MATH 0461. ENGINEERING MATHEMATICS. 1st and 2nd Semesters, Summer. Lect. 4, 4 credits. Laplace Transforms: Fourier series and integrals; harmonic analysis; Bessel and Legendre Functions; introduction and applications of partial differential equations. Prerequisite: Minimum grade of "C" in both MATH 0307 and MATH 0209.

Graduate Courses

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

MATH 0504. INTRODUCTION TO APPLIED STATISTICS. 1st Semester, Summer on Demand. Lect. 3, 3 credits. Basic concepts and mathematical preliminaries; frequency distributions; statistical notation, measures of central tendency; correlations and regression; basic sampling theory; statistical hypotheses; introduction to design and experiments; t-test; chi-square tests; analysis of variance; applications of statistical methods to problems in psychology and educational business, economics, biology, agriculture, sociology and mathematics. Prerequisite: Department Approval.

MATH 0505. ADVANCED CALCULUS I. 1st Semester, Summer on Demand. Lect. 3, 3 credits. Real number system; point set theory; sequences and series; limits and continuity; differentiation; integration. Prerequisite: Minimum grade of"C" in MATH 0209 and Department Approval.

MATH 0506. ADVANCED CALCULUS II. 2nd Semester. Lect. 3, 3 credits. Series of functions; further integration; line and surface integrals. Prerequisite: MATH 0505 and/or Departmental Approval.

MATH 0507. PROBABILITY AND STATISTICS. 2nd Semester, Summer on Demand. Lect. 3, 3 credits. Introduction to probability theory; theory of probability distributions; random variables and functions of random variables, expected values; sampling theory of distributions; applications. Prerequisite: Minimum grade of "C" in MATH 0208.

MATH 0510. COMPLEX VARIABLES. 2nd Semester. Lect. 3, 3 credits. Theory of analytic functions; Cauchy's integral theorem and formula; poles and residues; series expansions of analytic functions and conformal representations. Prerequisite: MATH 0505 and/or Departmental Approval.

MATH 0522. MODERN MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS. (Offered in response to need and availability of faculty. Lect. 3, 3 credits). Logic; sets; real number system; numeration systems; elementary number theory; metric system. Prerequisite: Minimum grade of "C" in MATH 0103 or Departmental Approval.

MATH 0525. MODERN MATHEMATICS FOR SECONDARY SCHOOL TEACHERS I. (Offered in response to need and availability of faculty). Lect. 3, 3 credits. Sets and numbers; relations and functions; polynomial functions; exponential and logarithmic functions. Prerequisite: Departmental Approval.

MATH 0526. MODERN MATHEMATICS FOR SECONDARY SCHOOL TEACHERS II. (Offered in response to need and availability of faculty). Lect. 3, 3 credits. Circular functions; trigonometric functions; vectors; theory of equations; complex numbers; analytic geometry. Prerequisite: MATH 0525.

MATH 0527. NUMERICAL METHODS FOR SECONDARY SCHOOL TEACHERS. (Offered in response to need and availability of faculty). Lect. 3, 3 credits. Programming in Time-shared BASIC; algorithms; flowcharting; estimating; approximating, iterators; applications. Prerequisite: Departmental Approval.

MATH 0528. INTRODUCTION TO REAL ANALYSIS. (Offered in response to need and availability of faculty). Lect. 3, 3 credits. Sets and functions; the real number system; limits; continuity; sequences and series of real numbers; sequences and series of functions. Prerequisite: Departmental Approval.

MATH 0561. APPLIED MATHEMATICS I. 1st Semester, Summer on Demand. Lect. 3, 3 credits. Functions of a complex variable with applications to Physics and Engineering; calculus of variations; matrices and systems of linear equations; eigenvalues and eigenvectors; diagonalization. Prerequisite: Minimum grade of "C" in MATH 0461 or Departmental Approval.

MATH 0562. APPLIED MATHEMATICS II. 2nd Semester, Summer on Demand. Lect. 3, 3 credits. Special functions; partial differential equations; characteristics; solutions of Laplace, Helmholtz, wave and heat equations; boundary conditions and eigenfunctions; Sturm-Liouville

problems; Green's function. Prerequisite: Minimum grade of "C" in MATH 0461 or Departmental Approval.

PSYCHOLOGY, SOCIOLOGY AND PHILOSOPHY

Mission Statement

The Department offers majors in psychology and sociology, and minors in philosophy, psychology, and sociology. In addition, the Department coordinates with the National Center for Bioethics to assist in implementing the Bioethics Minor. The faculty of the three areas find consensus in their commitment to sustaining a sound yet flexible curriculum to facilitate students' diverse interests and that allows students to tailor their course of study to fulfill their career goals, whether through advanced study or entrance into the workforce. All three areas also serve the core curriculum and provide significant service for other majors and minors on campus. Introductory courses in all three areas offer basic knowledge of the subjects, including their methods and possible applications. Advanced courses prepare students for graduate and professional work in the three areas as well as many related fields such as anthropology, law, psychiatry, medicine, human resources, business, criminal justice, social work, education, bioethics, cultural studies, scientific research, journalism, and art criticism. Ethics, a core branch of the philosophy curriculum, serves the double purpose of being both a mainstay for humanities requirements and the accreditation source for ethics in all of the University's colleges.

Faculty members in all three disciplines bring diverse theoretical perspectives to their courses and use a wide array of methodological strategies in their research and teaching. The faculty is committed to providing students with encouragement and tools to be able to reflect in a creative and critical manner about value, society, and the nature of reality itself. The Sociology and Psychology faculty provide a broad foundation in theory and research, incorporating research experiences to strengthen student's research and critical thinking skills. Both disciplines incorporate either field and/or clinical experiences to provide exposure to the application of theory and research in real-life settings. Sociology and Psychology faculty research address both theoretical and practical issues, such as causes of criminal behavior, the impact of legislation on family policy and poverty programs, medical sociology and social justice issues, the psychology of learning, and human factors issues. Philosophy faculty research incorporates issues of bioethics, medical ethics, environmental ethics, Africana philosophy, aesthetics philosophy of science and mind, and sociopolitical philosophy. All three disciplines in the Department place emphasis on the sociopolitical basis of knowledge, human thought and behavior.

Students wishing to transfer from another Tuskegee University major in order to be admitted as a major in Sociology will be considered, if their cumulative GPA is 2.0 or higher and they are in compliance with regulations printed in the *Academic Regulations and Procedures for Undergraduates.*

Conditional admission may be granted to students who:

1. Have a cumulative GPA below 2.00.

Students admitted on a conditional basis will be given two semesters to come into compliance or be dropped from the program. Students who cannot reasonably be expected to

come into compliance within that time period or who have failed (D or lower) two or more courses in their intended major will not be granted admission.

PSYCHOLOGY ACADEMIC PROGRAM DESCRIPTION

The Psychology program at Tuskegee University provides a flexible curriculum, designed to meet the needs of a wide variety of students with wide-ranging career goals. The program is designed to develop strong research skills, through the incorporation of several research-based courses, and ending in the capstone, Senior Seminar course. Students may choose to work individually with a faculty member on an independent research project to further enhance research skills. The Program also maintains relationships with several nearby organizations to provide practicum experiences to facilitate the application of theoretical principles to real-life situations. The Psychology program has an active Psychology Club and has an active Psi Chi National Honor Society chapter. Psi Chi was chartered at Tuskegee University in 1992. Both organizations provide service to their majors and the University through a variety of activities.

CURRICULUM FOR PSYCHOLOGY MAJOR

Freshman 1st Sem		**Freshman 2nd Sem**	
UNIV 0101 Orientation	1	ENGL 0102 Engl Comp.#*	3
ENGL 0101 Engl. Comp# *	3	NAT SCI Elec Core	3
MATH 0107 or Higher # *	4	HIST 0104/ 0210/ 0211	3
HIST 0103 World Civ	3	PHED/ROTC Elective	1
PHED/ROTC Elective	1	SOCI 0240	3
PSYC 0270 Gen. Psych.#	3	FPAR/MUSC Core	2
Total Credits	**15**	**Total Credits**	**16**

Sophomore 1st Sem		**Sophomore 2nd Sem**	
ENGL 0201/0203/0204#	3	ENGL any Literature#	3
POLS Core Elec	3	PSYC 0274/0303/523/525 #	3
BIOL/CHEM Elec. Core	3	PSYC 0306 Psych. Stat#	3
BIOL/CHEM Lab Elec.	1	Phil core Elec (3rd area)	3
PSYC 0272/273/or 377#	3	BIOL/CHEM Elec.	3
CSCI 0100/0150/205/229	3	BIOL/CHEM Lab Elec.	1
Total Credits	**16**	**Total Credits**	**16**

English Proficiency Exam (EPE) @

Junior 1st Sem		**Junior 2nd Sem**	
Foreign Lang/Opt/Minor	3	Foreign Lang/Opt/Minor	3
PSYC 0410 Exp. Psyc#	3	PSYC 0561 Learning#	3
PSYC 0570 or 0320#	3	PSYC 0420 Hist of Psyc#	3
ENGL 0220/ 0324/ 0327 #	3	Free Elective	3
Free Elective	3	ECON 0201/202/203/ 204	3
Total Credits	**15**	**Total Credits**	**15**

Senior 1st Sem		**Senior 2nd Sem**	
Foreign Lang/Opt/Minor	3	Foreign Lang/Opt/Minor	3
PSYC Elective#	3	PSYC 0440 Seminar#	3
PSYC 0567 Abnormal#	3	PSYC Elec#	3
SOCI Upper Level Elec	3	Free Elective	3
Free Elective	3	Free Elective	3
Total Credits	**15**	**Total Credits**	**15**

#MINMUM GRADE OF C REQUIRED,*PLACEMENT BY TEST RESULTS.
@These requirements must be completed before the student can proceed beyond 60 hours attempted.

Psychology Minor: A student who wishes to complete a minor in Psychology must complete the following courses with a "C" grade or higher: PSYC 270, 306, 377, 410, 570, and 567.

Psychology Course Descriptions

Undergraduate Courses

PSYC 0270. INTRODUCTION TO PSYCHOLOGY. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. This course surveys the field of psychology with a systematic study of the history, experiments, and theories regarding human behavior.

PSYC 0272. CHILD PSYCHOLOGY. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. Human development from conception through late childhood. Emphasis is on general developmental characteristics and upon general determinants of the developmental process.

PSYC 0273. ADOLESCENT PSYCHOLOGY. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. Human development of behavior from adolescence through maturity, with emphasis on physical, intellectual, educational, personality, and social development in contemporary society.

PSYC 0274. EDUCATIONAL PSYCHOLOGY. 2nd Semester Summer. Lect. 3, Lab 2, 3 credits. Introduction to use the basic psychological principles as educational tools. Emphasis on identification, analysis, modification, and control of behavior. (PSYC 272, 273, or 377.)

PSYC 0303. TESTS AND MEASUREMENTS. 2nd Semester. Lect. 3, Lab 2, 3 credits. Introduction to test theory, including concepts of item construction, standardization, reliability, validity, and the applications of psychological tests and measurements. (PSYC 0270, PSYC 0272 or PSYC 0377.)

PSYC 0306. PSYCHOLOGICAL STATISTICS. 1st and 2nd Semesters. Lect. 3, Lab 2, 3 credits. An introduction to descriptive and inferential statistics for the psychological sciences. Topics covered include descriptive and inferential statistics, including chi-square, t-test, analysis of variance, correlational techniques, and when those techniques might be applicable in psychology. Prerequisite: PSYC 270.

PSYC 0320. PERSONALITY. 1st Semester. Lect. 3, 3 credits. Contemporary theories of the development and organization of personality. Prerequisite: PSYC 0270.

PSYC 0340. PHYSIOLOGICAL PSYCHOLOGY. (Offered in response to need and available faculty). Lect. 3, 3 credits. Introduction to the study of relationships between bodily processes and behavior. Emphasis is placed upon basic anatomy and physiology of sensory and motor functions, motivation, emotions, learning, and behavior disorders. Prerequisite: PSYC 0270.

PSYC 0370. HUMAN SEXUALITY. (Offered in response to need and available faculty.). Lect. 3, 3 credits. An examination of the sexual nature of the individual and the behavioral, attitudinal, and physiological aspects that are related to sexuality. Prerequisite: PSYC 270.

PSYC 0377. HUMAN DEVELOPMENT. 1st and 2nd Semesters. Lect. 3, Lab 1, 3 credits. An examination of the total life span, from conception through old age, and the developmental tasks encountered by humans.

PSYC 0410. EXPERIMENTAL PSYCHOLOGY. 1st Semester. Lect. 3, Lab 2, 3 credits. Research designs and the evaluation of data concerning basic psychological processes. Selected problems will be drawn from areas such as learning, perception, thinking, and motivation. Prerequisite: PSYC 270.

PSYC 0420. HISTORY AND SYSTEMS OF PSYCHOLOGY. 2nd Semester. Lect. 3, 3 credits. A comparative study of more influential schools and points of view in psychology, past and present. Prerequisite: PSYC 0270. Restricted to majors.

PSYC 0430. INDUSTRIAL PSYCHOLOGY. (Offered in response to need and available faculty). Lect. 3, 3 credits. An examination of psychological principles and theories as they apply to industry. Topics include leadership, cohesiveness, and efficiency. Prerequisite: Six hours in Psychology, including PSYC 0270.

PSYC 0440. SEMINAR. 2nd Semester. Lect. 3, 3 credits. Current issues in the field of psychology and a research project culminating in a research report to be presented to the psychology faculty. Limited to seniors majoring in Psychology. Prerequisites: PSYC 0270, 0306, 0410.

COURSES FOR ADVANCED UNDERGRADUATE AND GRADUATE STUDENTS

PSYC 0523. APPLIED BEHAVIOR ANALYSIS. (Offered in Fall semesters, in response to need and available faculty). Lect 3, Lab, 3 credits. Techniques of reinforcements and contingency management are examined. Prerequisite: PSYC 0270 or permission of the instructor.

PSYC 0525. HUMAN FACTORS PSYCHOLOGY (Offered in Fall semesters, in response to need and available faculty.) Lect 3, Lab, 3 credits. A survey of the field of human factors psychology. Explores the physical and psychological capabilities of the human operator and how these should be used to guide the design of technologies and systems with which people interact.

This class includes a laboratory research experience in the area of aviation human factors psychology. Prerequisites: PSYC 0270 and Junior Standing or permission of the instructor.

PSYC 0561. THEORIES OF LEARNING. 2nd Semester. Lect. 3, 3 credits. A comparative study of the major scientific accounts of the learning process. Emphasis is on the evaluation of each theory in terms of structure, scope, research, and potential applications, and in relation to other forms of psychological theory. Prerequisite: PSYC 0270.

PSYC 0562. READINGS IN PSYCHOLOGY. 1st and 2nd Semesters. Lect. 2, 3 credits. Individual investigation and reports on advanced psychological topics. Prerequisites: PSYC 0270 and written permission from the instructor and the Departmental Chairperson.

PSYC 0567. ABNORMAL PSYCHOLOGY. 1st Semester. Lect. 3, 3 credits. The field of psychopathology, including etiology, prevalence, classification, and treatment of mental inadequacies and disturbances and various interpretations of abnormal behavior. Prerequisite: PSYC 0270.

PSYC 0570. SOCIAL PSYCHOLOGY. 1st Semester. Lect. 3, 3 credits. A detailed consideration of the theories of social interaction; the influence of culture in the development of personality; the anomalies of social interaction. Prerequisite: PSYC 0270.

SOCIOLOGY ACADEMIC PROGRAM DESCRIPTION

The Tuskegee Sociology program is one of the few located at Historically Black Colleges and Universities in Alabama. We offer African American undergraduates from all over the United States a top quality education leading to the Bachelor of Arts with a Major or Minor in Sociology. Located in one of the country's most rural areas, we are proud to be a department where faculty and students can apply their sociological lens to "real world" issues. In the sociology program, students have access to a faculty who focus on the larger forces of globalization as well as on the social realities of our local rural landscapes. As part of a broader education at Tuskegee University, we believe that an undergraduate degree in Sociology prepares African American students for work in a wide range of fields. Research skills are emphasized through several rigorous research courses. Students may also work individually with faculty members on independent research projects. The Sociology program has an active Sociology Club, and the Alpha Kappa Delta Honor Society in Sociology. Both organizations provide service to their majors and the University through a variety of activities.

CURRICULUM FOR SOCIOLOGY MAJOR

Freshman 1st Sem		**Freshman 2nd Sem**	
ENGL 0101 Eng Comp #*	3	ENGL 0102 Eng Comp #*	3
HIST 0103 World Civ	3	HIST 0104/ 210/ 211	3
UNIV 0101 Orientation	1	UNIV 0102 Orientation	1
MATH 0107 or higher *	4	NATURAL SCI ELEC Core	4
SOCI 0240 Sociology#	3	SOCI 0201 Social Issues#	3
PHED/ROTC Elective	1	FPAR/MUSC CORE	2

		PHED/ROTC Elective	1
Total Credits	**18**	**Total Credits**	**17**

Sophomore 1st Sem		**Sophomore 2nd Sem**	
ENGL 0201/0203/0204#	3	Humanities Elec	3
CSCI 0100/0150/205/229	3	PHIL ELEC Core	3
NATURAL SCI ELEC Core	3	SOCI 0414 Population#	3
NATURAL SCI ELEC LAB	1	Social Science Elec Core	3
Humanities Elec	3	SOCI 0352 Theory#	3
SOCI 0300 Statistics#	3	**Total Credits**	**15**
Total Credits	**16**		

English Proficiency Exam (EPE) @

Junior 1st Sem		**Junior 2nd Sem**	
Foreign Lang/Opt/Minor	3	Foreign Lang/Opt/Minor	3
Free Elective	3	SOCI 0302 Soc Research#	3
SOCI 0301 Intro Research#	3	Social Science Elec @	3
SOCI Elective#	3	Free Elective	3
Social Science Elec @	3	MATH/NATURAL SCI Elec	4
Total Credits	**15**	**Total Credits**	**16**

Senior 1st Sem		**Senior 2nd Sem**	
SOCI Elective#	3	SOCI Elective#	3
SOCI 0541 Prob South#	3	SOCI 0542 Race/Culture#	3
Foreign Lang/Opt/Minor	3	SOCI Elective#	3
Free Elective	3	Free Elective	3
SOCI Elective#	3	Foreign Lang/Opt/Minor	3
Total Credits	**15**	**Total Credits**	**15**

#MINIMUM GRADE OF C REQUIRED,*PLACEMENT BY TEST RESULTS.
@These requirements must be completed before the student can proceed beyond 60 hours attempted.

Sociology Minor: A student who wishes to complete a minor in Sociology must complete the following courses with "C" grade or higher: SOCI 240, 300, 301, 541 and 542.

Undergraduate Course Descriptions

SOCI 0200/0201. INTRODUCTION TO SOCIAL ISSUES. (Offered in response to need and available faculty). (0200) 2nd Semester (0201). Lect. 3, 3 credits. A course consisting of lectures, discussions and first hand observations of selected field situations. Emphasis is placed on understanding the relationship between theoretical concepts discussed in the classroom and phenomena observed by students in the community.

SOCI 0210. INTRODUCTION TO MODERN AFRICA. (Offered in response to need and available faculty). 1st Semester. Lect. 3, 3 credits. An interdisciplinary survey course designed to

obtain an overview of Africa. Applies a multidisciplinary approach to the study of the geopolitical, socioeconomic, historical, and cultural realities of Africa. Examines the processes of change, consolidation of the nation states, inter-African network and development and the role of Afro-Americans in modern Africa.

SOCI 0240. INTRODUCTION TO SOCIOLOGY. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. Introduction to the scientific study of social structures and social processes as they operate in American Society.

SOCI 0241. SOCIAL PROBLEMS. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. A systematic analysis of social problems, using values in conflict as the major referent.

SOCIO 0243. RURAL SOCIOLOGY AND ECONOMICS. (Offered in response to need and available faculty). 2nd Semester. Lect. 3, 3 credits. The study of rural communities, rural social institutions and the place of rural people in the wider society. Agricultural and social change in comparative perspective, with attention to the consequences of social policy for rural life.

SOCI 0300. STATISTICS. 1st Semester, Summer. Lect 2, Lab 1, 3 credits. Application of the theory of probability, measures of association, tests of significance to empirical problems in social research, and practical exercises using empirical data. Prerequisite: MATH 0107.

SOCI 0301. INTRODUCTION TO SOCIOLOGICAL RESEARCH. 1st Semester. Lect. 3, 3 credits. An introduction to relationships between sociological theory, methods and research. Emphasis is placed on establishing theoretical framework, conceptual models and the meaning of research, sampling techniques and methods of collecting empirical data.

SOCI 0302. SOCIOLOGICAL RESEARCH. 2nd Semester. Lect. 1, Lab 2, 3 credits. The application of scientific methods to sociological problems. Emphasis is placed on the selection of statement of research problems, scale construction, measurement, hypothesis testing, collecting data, data analysis, data interpretation and writing a sociological research paper. Prerequisites: SOCI 0300, SOCI 0301.

SOCI 0305. TECHNOLOGY AND SOCIETY. (Offered in response to need and available faculty). Lect. 3, 3 credits. Examination of the interrelationship between technological innovations and problems and the organization of society. Introduction to the scientific aspects of selected current technological phenomena. Social scientific explanations of the effect of technology on the structure of society and the societal impediments to adopting technological innovations and solving technological problems. Prerequisite: SOCI 0240 and Junior Classification.

SOCI 0306. COUPLE AND FAMILY COMMUNICATION. Alternate 2nd Semesters. Lect. 3, 3 credits. Effective communication is central to family stability and partners' happiness. This course focuses on communication concepts, processes, skills, and behaviors that strengthen family relationships and enhance spouses or partners' satisfaction. The course is a combination of theoretical materials and practical training, including conflict resolution.

SOCI 0310. JUVENILE DELINQUENCY. Alternate 1st Semesters. Lect. 3, 3 credits. An analysis of juvenile delinquency with an examination of causes, methods of prevention, and approaches to treatment. Prerequisite: SOCI 0240.

SOCI 0311. CRIMINOLOGY. Alternate 2nd Semesters. Lect. 3, 3 credits. An analysis of crime and delinquency with an examination of the causes and consequences of crime and society's reaction to criminal examination of legal, judicial and penological systems.

SOCI 0330. SOCIAL STRATIFICATION. (Offered in response to need and available faculty). 2nd Semester. Lect. 3, 3 credits. The development and function of power, prestige and class strata in relation to larger social structures with particular emphasis on the United States. Prerequisite: SOCI 0240.

SOCI 0340. INTRODUCTION TO ANTHROPOLOGY. (Offered in response to need and available faculty). Lect. 3, 3 credits. An introduction to the cross cultural study of human behavior and concepts of anthropology, with emphasis on socio-cultural and economic change.

SOCI 0341. PSYCHOLOGICAL ANTHROPOLOGY. (Offered in response to need and available faculty). Lect. 3, 3 credits. Anthropological cross cultural perspectives on the individual, culture and society with attention to culture and personality, socialization, culture of poverty theory, race and I.Q., and the psychology of racism.

SOCI 0352. CONTEMPORARY SOCIOLOGICAL THEORY. 2nd Semester. Lect. 3, 3 credits. Examination of major contemporary theoretical approaches used by sociologists to study social phenomena. Prerequisite: SOCI 0240.

SOCI 0360. APPLIED ANTHROPOLOGY. (Offered in response to need and available faculty). Lect. 3, 3 credits. The examination of the theoretical approaches and methods of applied anthropological research. Exploration of the cultural, social, and psychological aspects of technical assistance and technological development. Emphasis on the "human factors" in technological change.

SOCI 0370. SOCIAL PSYCHOLOGY. Alternate 1st Semesters. Lect. 3, 3 credits. The study of the development of human nature and personality as a product of social interaction and the nature of the socialization process. Special attention is given to the role of such factors as membership and reference groups, group values, attitude, norms, language in the development of personality. Prerequisite: SOCI 0240 or PSYC 0270.

SOCI 0380. SOCIAL ORGANIZATION. (Offered in response to need and available faculty). Lect. 3, 3 credits. Types of organization in human societies; development, maintenance and changes in these types; their relationship to each other and to their societies; the relation of work organization to the individual life cycle.

SOCI 0381. DRUG ABUSE. Alternate 1st Semesters. Lect. 3, 3 credits. This course examines the etiology and consequences of drug abuse. Special attention is paid to drug use/abuse prevention.

SOCI 0401. SEMINAR IN SOCIOLOGY. (Offered in response to need and available faculty). Lect. 3, 3 credits. Presentation and discussion of problems in sociology. Prerequisites: SOCI 0302, 0352 or permission of instructor.

SOCI 0402. SOCIAL MENTAL HEALTH. Alternate 2nd Semesters. Lect. 3, 3 credits. This sociology course presents an eclectic approach to the study of mental health. This approach is probably the most fruitful and realistic stance because the mental illness enterprises is diverse, amorphous and loose.

SOCI 0403/0404. INDEPENDENT STUDY. 1st and 2nd Semesters. 1-3 credits. This course will be somewhat tutorial in format. The enrolled student will be assigned to a faculty member with whom he will work out certain specific assignments. The student will have the primary responsibility of completing these assignments under the guidance of the assigned instructor. Prerequisites: Written permission by instructor.

SOCI 0414. POPULATION. 2nd Semester. Lect. 3, 3 credits. A description and analysis of basic demographic processes fertility, mortality, migration, and composition and their determinants and consequences with respect to the population of the United States and to lesser extent the population of the developed and developing nations of the world. Students are familiarized with sources of vital population statistics with implications for solution to urban, rural, suburban, and urban fringe problems.

SOCI 0440. THE FAMILY. 1st Semester, Summer. Lect. 3, 3 credits. An analysis of the Family, both as an institution of society and as an intimate environment. Special attention is given to the organization functions and relationship of marriage and the family. Special attention is given to cross cultural family patterns and the role of the family in west African development. Prerequisite: SOCI 0240.

SOCI 0443. MINORITY AND ETHNIC GROUP RELATIONS. (Offered in response to need and available faculty). Lect. 3, 3 credits. Theoretical perspectives are applied to the analysis of minority and ethnic group relations. The status and problems of minority groups are examined within the context of modernization. Prerequisite: SOCI 0240.

SOCI 0453. URBAN SOCIETY. (Offered in response to need and available faculty). Lect. 3, 3 credits. An analysis of the modern urban community, its pattern of organization and the forces contributory to a distinctive urban way of life. Emphasis will be placed on the culture of cities, ecology of the city and problems facing the urban dweller. Prerequisite: SOCI 0240.

SOCI 0460. POLITICAL ANTHROPOLOGY IN DEVELOPING SOCIETIES. (Offered in response to need and available faculty) Lect. 3, 3 credits. The study of national and local level political processes in the context of international forces. State formation, ethic mobilization, class differentiation and rural-urban relations.

SOCI 0465. METHODS FOR ANTHROPOLOGICAL RESEARCH. (Offered in response to need and available faculty) Lect. 2, Lab 1, 3 credits. Systematic consideration of method and

qualitative procedures of data-gathering and manipulation from which anthropological generalizations about human behavior are derived. Research design and presentation of findings.

SOCI 0470. SOCIOLOGY OF HEALTH CARE. 1st Semester. Lect. 3, 3 credits. A cross-culture approach to health, illness and health care including special problems of health care delivery experienced by poor, rural and minority population with selected examples from the U.S. and developing nations.

SOCI 0480. THEORIES OF SOCIAL CHANGE. (Offered in response to need and available faculty). Lect. 3, 3 credits. Examination of theoretical attempts to account for social change. Emphasis on classical and contemporary sociological and anthropological writers of social change. Case studies will be used to understand and evaluate the various approaches. Prerequisite: SOCI 0240 or 0340.

Courses for Advanced Undergraduate and Graduate Students

SOCI 0510 HEALTH DISPARITIES , BIOETHICS AND POLIC. 2nd Semester, Lect 3, 3 credits. This cross-disciplinary course introduces students to issues surrounding racial and ethnic health disparities, highlighting inequalities experienced by African American and other minority populations. Bioethical approaches to social justice provide a unifying framework for examining root causes of disparities. The course introduces individual programmatic and research strategies for shaping community health, public discussion, and policy. The course also explores career options available to address health disparities. Prerequisite: Graduate or advanced undergraduate status or permission of instructor.

SOCI 0541. SOCIO-CULTURAL PROBLEMS OF THE SOUTH. 1st Semester. Lect. 3, 3 credits. Socio-cultural problems of the South as a region, and of selected population groups within the region. Prerequisite: SOCI 0240.

SOCI 0542. RACE AND CULTURE. 2nd Semester. Lect. 3, 3 credits. Theories of culture as a factor determining race relations; the basis of various patters of race relations in different social situations. Prerequisite: SOCI 0240.

SOCI 0543. SOCIO CULTURAL CHANGE IN AFRICA. (Offered in response to need and available faculty). Lect. 3, 3 credits. A historical approach to the continent, its precolonial, colonial and post-independence development, with attention to changing productive systems, kinship, social organization, ethnicity, social stratification, trade and dependency. Prerequisite: SOCI 0240 or 0340.

PHILOSOPHY ACADEMIC PROGRAM DESCRIPTION

The Philosophy program offers a rich curriculum with an emphasis on the history of ideas and the study of the significance of the creative mind that covers all major branches of philosophical study. Political philosophy, philosophy of science, philosophy of mind, philosophy

of religion, medical and bioethics, environmental ethics, Africana philosophy, and feminism are among the areas of study and research of faculty members.

Philosophy Minor

Students who wish to earn the Philosophy Minor should complete 18 semester hours in Philosophy with a "C" grade or higher. In addition, he or she must meet "Depth Requirement" of 9 semester credit hours in Upper Division Courses, that is, 300-level courses or higher. In addition, a student must meet a "Breath Requirement" of three semester credit hours (one course) from each of the following categories: Historical, Ethical, Topical, and Scientific. Historical courses are: PHIL 201, 203, 321, 323, 341, 352, 357. Ethical courses are: PHIL 203, 204, 205,341,342,347,348,350,352,353. Topical courses are: PHIL 205, 237, 238, 310,325, 347,350,351. Although most courses fall into more than one category, a course can only be used once to fulfill one of the Philosophy categories. However, 300-level courses can be used to meet both a category requirement and the 300-level requirement.

Philosophy Course Description

Undergraduate Courses

PHIL 0201. INTRODUCTION TO PHILOSOPHY. 2nd Semester, Summer. Lect. 3, 3 credits. A survey of the subject areas, methods, vocabulary, and historical development of philosophy. Students are exposed to the thinking of the major philosophers in the history of philosophy. The perennial philosophical issues such as human freedom, power, love, and truth are discussed. The objective of the course is to provide an elemental knowledge of philosophy in general.

PHIL 0203. ETHICS AND VALUES. 1st Semester, Summer. Lect. 3, 3 credits. This course is an examination of the major ethical theories that have been developed throughout the history of Western philosophy. These theories are given a philosophical context. The course will concentrate on the relationship of traditional ethics to current ethical problems.

PHIL 0204. ETHICS AND VALUES: APPLIED CONCENTRATION. 2nd Semester. Lect. 3, 3 credits. The course reflects upon ethical theory as it applies to one or more actual and existing moral problems. Examples of topics include race, bioethics, censorship, the environment, film, and community.

PHIL 0205. INTRODUCTION TO BIOETHICS. 1st Semester. Lect. 3, 3 credits. An introduction to ethical issues in the sciences and health-related professions. The course addresses practical ethics in light of ethical concepts.

PHIL 0211. INTRODUCTION TO HUMANITIES I. 1st Semester, Summer. Lect. 3, 3 credits. A treatment of themes in cultural interaction and in ideas about community. The course takes a trans-cultural perspective, working with literature and with thematic texts.

PHIL 0212. INTRODUCTION TO HUMANITIES II. 2nd Semester, Summer. Lect. 3, 3 credits. A study of contemporary issues and problems is conducted through literary and cultural

investigations. The global dimensions of such issues as the environment, freedom, and consciousness are discussed.

PHIL 0237. INTRODUCTION TO LOGIC. 1st and 2nd Semesters, Summer. Lect. 3, 3 credits. The study of formal logic including both traditional (Aristotelian) and symbolic logic. The course considers the relation of logic to natural languages and to information sciences, and the general historical development of logic. The instruction emphasizes fundamentals of argument construction, proofs, and logical fallacies. An additional objective is to encourage students' improvement in reasoning skills.

PHIL 0238. ARGUMENTATION AND DISCOURSES. Alternate 2nd Semesters. Lect. 3, 3 credits. A reflection upon the nature and contexts of human discourses. It includes the study of informal logical fallacies and of the basics of rhetoric and induction. Post-structuralist theories of language and thinking are studied, as well as the philosophical aspects of the creation of signs and symbols. Trans-cultural concerns are prioritized.

PHIL 0295. DIRECTED READINGS. 1st and 2nd Semesters, Summer. 3 credits. Independent study by one or a few students on a specific topic. Or, a pilot course or offering by a guest professor or a regular professor. Prerequisite: Written permission of instructor.

PHIL 0310. ISSUES IN THE SCIENCES & HUMANITIES. 1st Semester. Lect. 3, 3 credits. A study of the ways in which human situations and concerns have influenced scientific progress and thinking. Major theorists of science (e.g. Whitehead), and important works in literature on the topics are reviewed. Bioethical issues are explored.

PHIL 0321. ANCIENT AND MEDIEVAL PHILOSOPHY. Alternate 2nd Semesters. Lect. 3, 3 credits. A study of selected works of philosophers from the Pre-Socratics through William of Ockham. Special attention is paid to the impact of these philosophers upon current thought. A primary objective of this course is to enable students to understand the classical significance of the early history of philosophy.

PHIL 0323. MODERN PHILOSOPHY. Alternate 2nd Semesters. Lect. 3, 3 credits. A course that concentrates on the interconnected development of philosophical thought from the Renaissance to the twentieth century. Questions raised by Descartes, Kant, Hobbes, etc., are addressed. The influences of these historical figures on political, ethical, economic, and scientific methods are studied. Although this course is a sequel to Philosophy 321, it may be taken independently as an elective.

PHIL 0325. PHILOSOPHY OF SCIENCE. 1st Semester. Lect. 3, 3 credits. Discussions, research, and reading on the scientific method and its attendant issues in ethics, bioethics, philosophy, and public policies.

PHIL 0341. SOCIAL AND POLITICAL PHILOSOPHY. Alternate 1st Semesters. Lect. 3, 3 credits. A study of historical and philosophical views on the reasons why societies are formed. The course includes critical discussions of social contract theory, Marxism, natural law, etc. Relations between the individual and society are examined.

PHIL 0342. PHILOSOPHY OF LAW. Alternate 1st Semesters. Lect. 3, 3 credits. This course examines the primary principles and concepts of common law and the constitutional system, along with the important questions in jurisprudence and legal theory using typical landmark cases. Recommended for pre-law students.

PHIL 0347. MEDICAL ETHICS. 2nd Semesters. Lect. 3, 3 credits. An examination of the moral issues raised by the recent advances in medical technology and the changing relationships between health care professionals and their patients. Broader bioethical topics are addressed.

PHIL 0348. BUSINESS ETHICS. 1st and 2nd Semesters. Lect. 3, 3 credits. An examination of reasonable moral judgment as applied to business areas such as marketing, personnel relations, and quality control. The course also includes consideration of corporate ethics, ethics in international business, and moral versus economic values.

PHIL 0350. THEORIES OF NATURE, THE COSMOS, AND THE ENVIRONMENT. Alternate 2nd Semesters. Lect. 3, 3 credits. A study of environmental ethics and related issues, such as the balance between sustainability and growth, controversies regarding naturalistic philosophies, changing perceptions of the relations between nature and culture, and the contemporary significance of *various* theories of evolution.

PHIL 0351. PHILOSOPHY OF MIND. 2nd Semester. Lect. 3, 3 credits. A study of current and traditional theories of mind. The course studies the ethical and metaphysical meanings of both the materialistic and the vitalistic approaches.

PHIL 0352. EASTERN PHILOSOPHY. Alternate 1st Semesters. Lect. 3, 3 credits. A survey of the great movements in the philosophies and the religious views of Asia, such as Hinduism, Buddhism, Confucianism, etc. Both traditional texts and contemporary critical reflections will be studied.

PHIL 0353. PHILOSOPHY OF RELIGION. Alternate 1st Semesters. Lect. 3, 3 credits. The study of religion from a philosophical perspective, including what philosophy of religion is, as opposed to other forms of religious studies (theology, scripture studies, etc.). The course will concentrate on critical evaluation of religious concepts, including the idea of religious practice itself.

PHIL 0357. AFRICANA PHILOSOPHY. Alternate 2nd Semesters. Lect. 3, 3 credits. The course examines the relationship of philosophical ideas to the concerns and ideas of thinkers from Africa and the Diaspora. Metaphysics and areas of values, e.g., social, political, ethical, and aesthetic, are reflected upon through the prism of Africana thought.

PHIL 0395. DIRECTED READINGS. 1st and 2nd Semesters, Summer. A more advanced level of study than PHIL 0295, but with the same procedures of instruction. (See above). Prerequisite: Written permission of instructor.

SOCIAL WORK

The Social Work Profession: Social Work practice is carried out in human service agencies such as those concerned with mental health, public welfare, medical care, the aged, child welfare, drug abuse, corrections, juvenile delinquency, housing, community development, social planning, and schools. To effectively perform this work, social workers must be concerned about their fellow human beings and must regard the worth and dignity of all individuals as fundamental. They must believe in the capacity of people to change and improve while understanding that some of the problems of individuals can be solved only by bringing about changes in the social, economic, or political environments.

The Social Work Major: The Department of Social Work offers a curriculum that leads to the Bachelor of Arts in Social Work. It is the primary objective of the Department of Social Work to prepare its students for beginning level, generalist, social work practice; preparation for graduate education follows, and is secondary to preparation for employment. The Council on Social Work Education, 1600 Duke Street, Alexandria, VA 22314-3421, 703-683-8080, at the undergraduate level, accredits the Department. The Commission on Accreditation has reaffirmed the Social Work baccalaureate program's accreditation for eight years, ending October 2018.

MISSION OF THE DEPARTMENT OF SOCIAL WORK

The mission of the Department of Social Work at Tuskegee University is to provide a quality educational program that includes a curriculum and teaching practices that are at the forefront of professional education. It seeks to build on a foundation of Liberal Arts courses.

The purpose of the educational program is to prepare students for entry to generalist social work practice and to graduate study. While maintaining strict admission and retention standards, the Department seeks to provide opportunities for change and advancement for a diversity of students, including selected students with non-standard backgrounds yet high potential for success.

PROGRAM GOALS

To prepare students for entry level social work practice with individuals, families and other groups, organizations, and communities.

To prepare students to practice within the core values and ethical principles that defines the social work profession.

To foster and strengthen the commitment of students to work toward alleviating poverty, income inequality, discrimination, oppression, and other forms of socioeconomic injustice.

To prepare students to practice social work with an understanding of and respect for the value of human diversity.

To provide students with extensive field instruction in several practice settings.

To provide students with skills in written and oral communication and structured opportunities to practice those skills.

To provide students with knowledge of information technologies and enriched experiences in applying them to solve problems in professional practice.

To provide students with enriched content on research methods and practice evaluation, the ability to assess the validity of research findings, and experiences in using research skills in problem-solving contexts.

To provide students with theoretical frameworks for understanding, assessing, and changing the behavior of individuals, families and other groups, and organizations.

To provide students with the ability to analyze and influence social policies and social work services in diverse political contexts.

To prepare students to further their professional growth and development in graduate study or in other types of continuing education.

PROGRAM OUTCOMES

Upon completion of the program, the student will be able to:

Apply critical thinking skills within the context of professional social work practice.

Understand the value base of the profession and its ethical standards and principles, and practice accordingly.

Practice without discrimination and with respect, knowledge, and skills related to clients' age, class, color, culture, disability, ethnicity, family structure, gender, marital status, national origin, race, religion, sex, and sexual orientation.
Understand the forms and mechanisms of cultural oppression, racial and ethnic discrimination, and economic exploitation.

Apply strategies of advocacy and social change that advance social and economic justice.

Understand and interpret the history of the social work profession and its contemporary structures and issues.

Apply the knowledge and skills of generalist social work practice with client systems of all sizes, i.e. individuals, groups (including families), organizations (including communities), and the society.

Use theoretical frameworks supported by empirical evidence to understand individual development and behavior across the life span and the interactions among individuals and between individuals and families, groups, organizations, and communities.

Analyze, formulate, and influence local and national social policies.

Evaluate research studies, published in traditional and Internet sources, and apply those research findings to practice, and evaluate their own practice interventions.

Use oral and written communication skills differentially across client populations, colleagues, and communities.

Function within the structure of organizations and service delivery systems, using appropriate supervision and consultation, and deliberately and ethically work to change the organizations and systems in which they practice. Demonstrate an understanding of and skill in using information technologies in social work practice to create, organize, analyze, interpret, communicate, and store/retrieve practice related information.

List of Degree Offered

Bachelor of Arts in Social Work

COURSE DESCRIPTIONS

SOWK 0145. INTRODUCTION TO HUMAN SERVICES. 1st and 2nd Semesters. Lect. 1, 1 credit. This course is designed to introduce students to the profession of social work and to the human-services field in general. It presents an integration of social work both as a field and a method. In addition it seeks to show how social work helps people to solve problems in social functioning and to strengthen their social relationships. The fields of social welfare and social work are described and exemplified with cases.

SOWK 0235. HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT I. 1st and 2nd Semesters. Lect. 3, 3 credits. Prerequisite: Psychology 270. This is a two-semester course designed to develop in the student a knowledge of the inter-relationship of biological, psychological, and social contributions of human growth and adaptation. Social factors such as ethnicity, gender, and culture are emphasized.

SOWK 0236. HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT II. 1st and 2nd Semesters. Lect. 3, 3 credits. The focus of the second semester is on behavior patterns that are at the dysfunctional or "pathological" end of the continuum. All behavior is viewed within a social systems concept. The implications of trauma, separation, loss, discrimination and handicap are introduced to highlight the ramifications of specific stressors, at particular points in the life cycle of the individual and family. Computer based multimedia techniques are used to enhance instruction in DSM-IV. Prerequisite: SOWK 0235.

SOWK 0245. INTRODUCTION TO SOCIAL WELFARE. 1st and 2nd Semesters. Lect. 3, 3 credits. Helps students develop a philosophical and historical perspective of welfare services and social work practice. Provide students with the beginning ability to analyze and evaluate social welfare services and programs particularly as they affect Black individuals, families and communities. Issues in political economy are explored.

SOWK 0300. COMPUTER APPLICATIONS. 1st and 2nd Semesters. Lect. 3, 3 credits. No prerequisites. Provide hands on introduction to real-world computer applications in the social and behavioral sciences: Word-processing, spreadsheets, management information systems, data base

systems, and statistical analysis (SPSSx). Data analysis is emphasized. Students work on a local area network and the Internet.

SOWK 0301. RESEARCH IN THE HUMAN SERVICES. 2nd Semester, 3 credits. Theories, methodologies, and materials used in social science research and applied social research. The focus is on the design of research. A field project is planned.

SOWK 0354. INTERPERSONAL SKILLS LABORATORY. 1st and 2nd Semesters. 3 credits. Interpersonal skills consist of the behaviors (verbal and non-verbal), which are necessary for individuals to establish and maintain relationships with one another. Even though the skills covered in this course are meant to enhance the helping relationship, they are also relevant for other types of human relationships such as the supervisor/supervisee relationship, business relationships, and relationships in work groups, peer and friendship relationships, and so on. The skills form a foundation for interviewing techniques and for providing therapeutic assistance for clients and or patients. This course also provides an opportunity for students to enhance their self-esteem and assertiveness as young men and women and as beginning professionals. In addition to lectures and readings this course utilizes in-class exercises and role-plays with audio-videotape feedback. Computer Monitored Instruction (CMI) is also used. Students are expected to make regular entries in a personal journal and to try out and practice the interpersonal skills in real-life situations.

***NOTE: (FORMAL ADMISSION TO THE SOCIAL WORK MAJOR IS REQUIRED FOR THE NEXT 6 COURSES)**

SOWK 0355. METHODS OF SOCIAL WORK PRACTICE I. 1st Semester, Summer. Lect. 3, 3 credits. This course is designed to prepare the student for generalist practice. It provides a problem-solving, task-oriented approach, to working with individuals, families and communities. The course provides the student with the opportunity to acquire the knowledge and competence needed for intervention at the beginning professional level. All aspects of this course emphasize the development of self-awareness and the acquisition of appropriate attitudes and values for enabling individuals, families and communities to reach their potential. Special attention is given to understanding cultural subgroups. Students are introduced to interviewing as a social work technique. Prerequisite: SOWK 0236 and 0245.

SOWK 0364. JUNIOR PRACTICUM SEMINAR. 2nd Semester, Summer. 0 credits. Meets for three hours per week; taken concurrently with SOWK 0365.

SOWK 0365. JUNIOR PRACTICUM. 2nd Semester, Summer. Field 3, 3 credits. Precursor to the Senior Internship. The junior practicum is an introductory internship experience. Professional field instruction for 100 clock hours, with weekly guidance and agency supervision, are required in a community social welfare agency. Regular seminar meetings are required. Prerequisite: SOWK 0355.

SOWK 0366. METHODS OF SOCIAL WORK PRACTICE II. 2nd Semester, Summer, 3 credits. (Taken concurrently with SOWK 0365) This course emphasizes and reinforces professional self-

management, principles and practice of interviewing, relationship building, problem solving, and the use of organizational structure.

SOWK 0445. SOCIAL WELFARE POLICY. 1st and 2nd Semesters. Lect. 3, 3 credits. This course is designed to enable the student to apply knowledge gained in SOWK 0245 toward skill in the analysis of policy and programs. Policy analysis as science-based art and technology will be explored. Reference will be made to other societies, and examples will be provided from various ethnic and cultural groups, with emphasis on the State of Alabama. Prerequisite: SOWK 0465.

SOWK 0464. Senior Internship Seminar. 1st Semester, Summer. 0 credits. Meets for three hours per week taken concurrently with SOWK 0465.

SOWK 0465. SENIOR INTERNSHIP. 1st Semester, Summer. 12 credits. Professional field instruction for 400 clock hours, with weekly faculty guidance and agency supervision. The student is responsible for a minimum of five individual clients, one direct service group, and one program development activity. Learning contracts, social histories, and weekly logs are required. Prerequisite: SOWK 0365

SOWK 0466. SENIOR SEMINAR. 1st and 2nd Semesters. 1 credit. A Living-learning seminar that emphasizes the role of the student as a professional learner. Experiences in the senior internship are analyzed and connected to professional goals and ethics. Role-plays, program designs, taped client sessions, and a major paper is developed for formal presentation. Prerequisite: SOWK 0465

ELECTIVE COURSES

SOWK 0356. SOCIAL WORK IN CRIMINAL JUSTICE SETTINGS. 1st and 2nd Semesters. Lect. 3, 3 credits. This course seeks to introduce the student to the role of social work in Corrections. In an effort to give a thorough introduction, theories of crime causation, past and present, will be presented. Students will be expected to analyze these theories viewed with emphasis on the effectiveness of rehabilitation programs, in the context of the social forces, which promote crime. Special attention will be given to the issue of black crime with causes, cures, and consequences.

SOWK 0357. SOCIAL WORK IN HEALTH SETTINGS. (Offered in response to need and availability of faculty). Lect. 3, 3 credits. This course seeks to analyze individual and community health needs along with the social and behavioral aspects of illness. Attention will be given to essential practice components and skill required of social workers in health care.

SOWK 0358. SOCIAL WORK IN MENTAL HEALTH SETTINGS. (Offered in response to need and availability of faculty). Lect. 3, 3 credits. The course is designed to give the student insight into the historical development of Mental Health services and present day delivery systems. The use of DSM IV in professional practice is emphasized.

SOWK 0360. PATTERNS OF DRUG ABUSE. 1st and 2nd Semesters. Lect. 3, 3 credits. The purpose of this course is to introduce the student to the socio-psychological and environmental factors that influence the abuse of behavior altering substances. Also, it provides the student with an exploration of the historical context in which legal controls were developed to alleviate drug abuse, and strategies for treatment and rehabilitation. Knowledge and skills for professional practice are emphasized.

SOWK 0456. SOCIAL GERONTOLOGY. 1st and 2nd Semesters. Lect. 3, 3 credits. This course aims to equip students with a framework and method of studying, assessing and understanding gerontology. The basic theoretical approach will be psychosocial in nature. With increasing numbers of older persons in the population, a major issue about our social policies and practices toward the aging process has arisen. The phenomenon of aging has had a major impact on our social arrangements and institutions, including the family, government, the political process, income maintenance, and work, as well as in the areas of health and social welfare delivery systems.

SOWK 0457. FAMILY AND CHILDREN'S SERVICES. 1st and 2nd Semesters. Lect. 3, 3 credits. An introduction to the field of child welfare, including programs, policies, problems and services. Principles and techniques for working with needy, neglected, abused and delinquent children are emphasized.

SOWK 0458. SOCIAL PLANNING AND ADMINISTRATION. (Offered in response to need and availability of faculty). Lect. 3, 3 credits. Provide students with knowledge and skills in planning and managing social services and programs. Content includes organizational theory, administrative procedure, governmental bodies, and social work practice roles in bureaucratized settings.

SOWK 0459. SOCIAL TREATMENT. (Offered in response to need and availability of faculty). Lect. 3, 3 credits. In-depth study of various theories and intervention techniques available to the modern social worker. Consider treatment approaches aimed at individual growth, family treatment, organizational consultation, and community practice.

SOWK 0495. INDEPENDENT STUDY. (Offered in response to need and availability of faculty). Lect. 1, 2, or 3 credits. In-depth study of various theories and intervention techniques available to the modern social worker. Consider treatment approaches aimed at individual growth, family treatment, organizational consultation, and community practice.

Admissions Policy and Procedure

A student can express an interest in Social Work by declaring it as his or her major through the Dean of the College and the Registrar. Nevertheless, a student cannot progress through the Social Work curriculum without first gaining formal admission. Applications for admission are normally reviewed during the Semester that immediately precedes the Semester the student is expected to enroll in the *Junior Practicum*. A student qualifies for admission by meeting the following criteria:

1. Completion of 45 credit hours or more, with a cumulative grade point average of at least

2.30.

2. Completion of the following courses with a "C" or better:

Social Work 0145	English 0101, 0102
Social Work 0245	English 201, 203, 204 or 209
Social Work 0235	Sociology 0240
Social Work 0236	Psychology 0270
Social Work 0354	
Social Work 0355	
Social Work 0300	

Submission of an Application Package, consisting of:
Application Form
Student Balance Sheet (signed by faculty advisor)
Narrative Statement (instructions are attached to Application Form)
Interview with faculty members (to be scheduled)
Pre/ Post Fees for Admission Test
Malpractice Insurance
Drug Test Screening
NASW Membership

Field Instruction

A major part of the student's learning is acquired through field instruction, during the Junior and Senior years. In the Junior Practicum, an introductory field experience, students work in local social welfare agencies for eight hours per week. The Junior Practicum provides students with an opportunity to develop their practice skills in the areas of interviewing, recording and reporting, assessing agencies, problem solving, and social service delivery. This gives students an early opportunity to test their aptitude and interest in Social Work. In the Senior Internship, students work 32 hours per week in social welfare agencies. Students carry a caseload of clients for whom they provide psychosocial treatment and services under professional supervision.

Eligibility for Field Instruction

Junior Practicum (SOWK 0365)

1. Admission to the Department of Social Work. (All criteria for admission must be completed)
2. Completion of SOWK 0145, 0235, 0236, 0245, 0354, 0355 and 0300
3. Completion of ENGL 0101, 0102
4. Completion of ENGL 0201, 0203, 0204 or 0209
5. Completion of Sociology 0240
6. Completion of Psychology 0270
7. Passing score on both parts of the English Proficiency Examination

Senior Internship (SOWK 0465)

1. Completion of SOWK 0365 and 0366.

Student Organizations

Students in the Department of Social work are encouraged to organize for their own interests and needs and to provide service to others. Students can participate in the activities of the following organizations: The Social Work Student Alliance; the Tuskegee University Student Chapter of the Association of Black Social Workers (ABSW) and Mentoring Community Program.

SOCIAL WORK NATIONAL HONOR SOCIETY

A chapter of Alpha Delta Mu, the National Social Work Honor Society; and the Alabama Chapter of the National Association of Social Workers (NASW).

Department of Social Work
Curriculum Sheet
Effective August 2008

Fall Term		**Spring Term**	
		Freshman Year	
*Engl 0101	3	*Engl 0102	3
Hist 0103	3	Hist 0104	3
Math 0107	4	Csci 0100	3
Biology 0111	3	Biology 0112	3
Orien 0100	1	Orien 0101	1
*Sowk 0145	1	Psyc 0270	3
Intro to Philosophy	3	Total	16
Phed	1		
Total	19		
		Sophomore Year	
*Sowk 0235	3	Humanities	3
*Sowk 0245	3	*Sowk 0236	3
*Soci 0240	3	Soci Course	3
*Sowk 0300	3	Engl 201,203,	3
Phed	1	204 or 209	
Natural Science Elec.	3	*Sowk 0354	3
Total	16	Natural Sci. El.	3
		Total	18
		Junior Year	
Humanities	2	Social Sci. El.	3
Social Science Elec.	3	*Sowk 0301	3
Math 504, Soci 300,	3	*Sowk 0364	0
or Psyc 306		*Sowk 0365	3
Engl 0220, or 0324,	3	*Sowk 0366	3

or 0327		Free Elective	2
*Sowk 0355	3	Total	14
Social Science Elec.	3		
Total	17		

Senior Year

*Sowk 0464	0	*Sowk 0466	2
*Sowk 0465	12	*Sowk 0445	3
Total	12	Free Electives	9
		Total	14

*Grade of "C" is passing for these and all majors courses

SCHOOL OF EDUCATION

Teacher education has been a primary endeavor of Tuskegee University since its founding in 1881 as Alabama's first Normal School for the Training of Negro Teachers. Baccalaureate degree programs in education were established in 1927 and over the years, Tuskegee University's teacher education graduates have served the profession in every region of the country and abroad. Now, as in the past, the School of Education maintains a strong commitment to improve education in the public schools through the division's field-based experience program and service activities.

The School of Education is the academic unit that prepares professional educators through its two departments: the Department of Curriculum and Instruction and the Department of Physical Education. The Division offers a total of five (5) degree programs. A coordinator is assigned to each degree program within the two departments with responsibility for monitoring each program's goals and objectives to ensure consistency with local, state, and national standards.

All Tuskegee University teacher education professional preparation programs are accredited by the National Council for Accreditation of Teacher Education (NCATE), regionally accredited by the Southern Association of Colleges and Schools (SACS), and approved by the Alabama State Department of Education (ALSDE) for Alabama teacher certification. From the first annual report to the Alabama State Department of Education, Tuskegee University's teacher education programs met the performance criteria of Section 208a of Title II of the Higher Education Act. The teacher education programs at Tuskegee University received a grade of "A" on the Alabama Report Card for two of the past three years.

GOALS AND OBJECTIVES OF THE DIVISION OF EDUCATION

The primary mission of the Division of Education is to "develop liberally educated, well-rounded individuals who are knowledgeable in their fields of specialization, proficient in the application of professional skills, and capable of identifying and adjusting to future professional requirements." (*School of Education NCATE Self-Study Report, 1992*, Section III, p. 8). More specifically, graduates of the Division of Education's programs are expected to:

- Demonstrate knowledge of the content and content-related pedagogy of their teaching field.

- Organize a student-centered and democratic classroom.
- Apply principles of human growth and development and constructivist learning.
- Adjust teaching methodology as a result of reflection, critical thinking, and sound reasoning.
- Work with the community within and outside the school environment as modeled in the Professional Development School concept.
- Be continuing, lifelong learners who seek new knowledge and experiences.
- Engage in professional development and scholarly endeavors that improve teaching and student learning.
- Engage in professional development and scholarly activities that improve schools and the profession.

Teacher education majors at Tuskegee University are educated within a Constructivist Reflective Conceptual Framework first adopted by the Division of Education in 1992 and revisited in 1997, 2002, 2003, and 2006. The framework's research and philosophical bases expand the more traditional concept of "knowing," and support: critical and reflective pedagogy, inquiry-oriented teaching, and a problem-solving view of learning. In summary, a constructivist reflective teacher:

- Encourages and accepts student autonomy and initiative.
- Uses raw data and primary sources, manipulatives, interactive and physical materials.
- Uses words such as classify, analyze, predict, and create when framing learning tasks.
- Allows student responses to drive lessons, shift instructional strategies, and alter content.
- Inquires about students' understandings of concepts before sharing their own understandings of those concepts.
- Encourages students to engage in dialogue, both with the teacher and with one another.
- Encourages student inquiry by asking thoughtful, open-ended questions, and encourages students to ask questions of each other.
- Seeks elaboration of students' initial responses.
- Engages students in experiences that might engender contradictions to their initial hypotheses and then encourages discussion.
- Allows wait time after posing questions.
- Provides time for students to construct relationships and create metaphors.
- Nurtures students' natural curiosity through frequent use of the learning cycle (inquiry or problem-based) model of teaching.

A constructivist teacher reflects on how best to:

- Create curricula materials and other resources that are clearly linked to the intent or goal of an instructional event.
- Monitor students' understanding of content, provide feedback, and adjust learning activities as needed.
- Monitor and accommodate students' individual interests, developmental levels, and cultural resources through a variety of learning activities.
- Create a safe and positive classroom climate with student teacher rapport and respect which promotes equity.

DEGREE GRANTING AREAS

Each teacher candidate who completes program requirements will receive a Bachelor of Arts degree in one of the following academic areas:

Elementary Education
English Language Arts Education
General Science Education
Mathematics Education
Physical Education

Students majoring in English Language Arts Education must declare and complete a second degree in English; General Science Education majors must declare and complete a second degree in Biology; and majors in Mathematics Education must declare and complete a second degree in Mathematics.

INSTRUCTIONAL AND RESEARCH SUPPORT SERVICES

Campus facilities and resources are offered through the main library as well as through other University and community sites which include:

Field Experiences Laboratory Schools. All Tuskegee University teacher education majors complete field-based experiences in state approved schools. Students must make arrangements for transportation to field-based sites. The Division of Education has a special cooperative relationship with the Macon County School System, with school in Auburn, Alabama, and other surrounding counties.

State of the Arts Technology: Huntington Hall. During the fall semester 2009, the Division of Education (teacher education program) relocated from the BioEthics Center to newly renovated Huntington Hall. Huntington Hall is equipped with state of the arts technology for teacher education that includes two major types: (1) utility tools and (2) teacher preparation tools. Utility tools include voice-over IP phone systems, desktop computers, notebook computers, color printers, black/white printers, scanners, and LCD projectors. Inclusive of utility tools, additional teacher preparation tools include overhead projectors, slide projectors, smart boards, mimeo pads, and student response system devices. Software includes standard office suites, web development software, Microsoft Publisher, Adobe Photoshop, various presentation software systems, video production software, and multiple education software systems and suites. Huntington Hall has two fully equipped technology instructional laboratories. Each laboratory has 14 computers (with printing capability) and overhead projection with internet capability. The Conference Room is technological ready with overhead projection and internet capability. The Conference Room is used mainly for student teaching seminars, field-clinical seminars, test preparation workshops, and faculty meetings.

Curriculum Resources Laboratory. The Curriculum Resources Laboratory (CRL) is also located in Huntington Hall. The CRL is a satellite of the University's main library which provides teacher education students, teacher education faculty, professional education faculty, and program specialists with professional publications, current children's literature collection, manipulatives for teaching, study guides for PRAXIS II, and study guides for the Alabama Prospective Teacher Testing Program (APTTP).

Media and Technology Laboratory. The Media and Technology Laboratory (MTL) provides teacher education students and faculty with equipment, materials, and resources to

develop bulletin boards, manipulatives, posters, identification cards, video tapes, and presentations. Laboratory equipment includes overhead and LCD projectors, a lettering machine, laptop computers, cameras, tape recorders, televisions, and laminating machines.

STUDENT PROFESSIONAL ORGANIZATIONS AND CLUBS

The Division of Education sponsors departmental clubs and student chapters of several national and international professional organizations, including:

1. Golden Key International Honor Society
2. International Reading Association
3. Kappa Delta Pi Honor Society in Education
4. Phi Delta Kappa Honor Society
5. Student Alabama Education Association (SAEA)
6. Student National Education Association (SNEA)

PRE-PROFESSIONAL TEACHER EDUCATION PROGRAM

Pre-professional Program

The Pre-professional Program ranges from sixty to sixty-six (60-66) semester hours of courses in general studies. Students are required to maintain a minimum Grade Point Average (GPA) of 2.5 in general studies, professional studies, and the teaching field. Students must have taken EDUC 0203 and completed 64 semester hours in elementary education, 66 hours in English language arts education, 65 hours in mathematics education, and 60 hours in general science education with the required grade point average in general studies to be eligible to apply for admission to the Upper Division Professional Teacher Education program**. Prospective teacher education candidates are only allowed to take the following five (5) professional education courses prior to admission to the Upper Division: ECYO 0210, EDUC 0200, EDUC 0203, EDUC 0309, and PSYC 0272 or PSYC 0377.** A student will be administratively counseled out of the teacher education program or denied admission if:

1. The student has earned during one semester two grades of "E" or "D" when "C" is the minimum passing grade in specified subjects listed as essential for the chosen field of specialization.
2. The student has earned one grade of "E" or "D" when "C" is the minimum passing grade in each of two consecutive semesters in subjects listed as essential for the chosen field of specialization.

Freshman Admission Requirements

1. ACT score of 20 or above or SAT score of 1000 or above
2. High School GPA of 2.50 or above
3. Tuskegee University's application for admission
4. High school transcript which shows satisfactory performance in English, mathematics, science, and social science

Requirements for Admission of Transfer Students and Upperclassmen

1. A transcript of ALL work completed at the college/university level

2. Transfer overall GPA of 2.50 or higher in general studies, professional studies, and teaching field courses will be considered for transfer credit. Courses and number of hours accepted in teacher education will determine each transfer student's classification.
3. A grade of "C" or higher is required for courses completed in English, teaching specialization, professional studies, and reading

PROFESSIONAL TEACHER EDUCATION PROGRAM

Teacher education majors must be formally admitted to the Upper Division Professional Teacher Education Program. To apply for admission, each student must complete and submit a word processed application. Application packets are available in the Office of the Dean, College of Arts and Sciences, located in the Bioethics Building. Each application must include:

1. A curriculum balance sheet that includes grades earned in all courses completed in the program. The curriculum balance sheet must clearly verify the following and be checked and signed by the advisor, the Department Chair, and the applicant:
    a. Completion of all General Studies courses (approximately 60 semester hours).
    b. A minimum of 2.50 grade point average (GPA) in General Studies. The highest grade obtained in General Studies courses will be used to calculate the General Studies GPA in accordance with the *Replacement Grades and Repetition of Courses* policies listed in the *Tuskegee University Academic Regulations and Procedures for Undergraduates* handbook.
    c. A minimum of 2.50 grade point average (GPA) in Professional Studies courses completed prior to filing an application for admission to the Professional Teacher Education Program.
    d. A minimum of 2.50 grade point average (GPA) in the Teaching Field courses completed.
    e. A minimum grade of "C" for courses listed with a "#" on the first page of the applicant's approved curriculum balance sheet.
    f. Satisfactory score on both parts of the Tuskegee University English Proficiency Examination (the applicant must attach a copy of results to the application form).
    g. A word processed and proofread autobiography.
    h. Verification that fifty-six (56) hours of pre-clinical experiences are completed at an acceptable level based upon the classroom teacher's evaluation.
    i. Earn an acceptable rating on an interview conducted by the Professional Teacher Education Committee. The interviews are designed to provide information on the applicant's dispositions, interests, and aptitudes consistent with the requirements for successful teaching.
    j. A copy of results of criminal history record check from the Alabama State Superintendent of Education.
2. Prior to filing an application for admission to the Upper Division Professional Teacher Education Program, the applicant must verify that the following documents are on file in the Dean's office.
    a. Two recommendations requested by the student from faculty members whose classes the student has taken and whose classes are required in the Tuskegee University teacher education program in which the student is currently enrolled. Transfer students may use recommendations from faculty members at their transfer institution provided the faculty members' courses were accepted for the Tuskegee University teacher

education program in which the student is currently enrolled. Completed recommendation forms should be submitted to the Dean's office in sealed envelopes with the recommender's signature across the sealed back flap of the envelope.

b. Health certification completed within the past 12 months, dated and signed by a licensed physician, and mailed by the physician to: Office of the Dean, College of Arts and Sciences, Kenney Hall, Tuskegee University, Tuskegee, AL 36088. *To ensure a timely arrival of the Health Certification, applicants should initiate health clearance procedures at least one month prior to the deadline date for applications*

The Professional Teacher Education Committee reviews applications to determine if a student is eligible to enter the Professional Teacher Education Program. After receiving the committee's recommendation from the Department Chair, the Dean notifies each student by letter of his/her Professional Teacher Education Admission status.

The "5 Course Rule." Students who have not been formally admitted to the Upper Division Professional Teacher Education may complete only 5 Professional Teacher Education courses. These courses are listed on the back of each program's curriculum balance sheet. Students may repeat any of the five courses in which she or he received a grade of "C" or below in order to achieve 2.50 GPA in professional studies. Students who violate this rule risk administrative removal from program courses and from the program, and as a result may lose financial aid and or scholarship assistance.

Grade Standards. A student will be removed from the teacher education program or denied admission to program if:

1. The student has earned during one semester two grades of "E" or "D" when "C" is the minimum passing grade in certain subjects listed as essential for the chosen field of specialization.
2. The student has earned one grade of "E" or "D" when "C" is the minimum passing grade in each of two consecutive semesters in subjects listed as essential for the chosen field of specialization.

Time Limit for Graduation and Curriculum Changes. The Dean of the College of Arts and Sciences will notify teacher education students when the state approved curriculum for their teacher education program changes (usually every five years). A student who has not graduated before the beginning of the sixth (6th) year of enrollment in the program must meet the new curricular requirements, including any increase in the total number of hours required for graduation. Students who change their major to teacher education will follow the curriculum in force at the time the major is changed. If a teacher education curriculum is changed as a result of new accreditation requirements, or for any other reason, students who have not been admitted to the Upper Division Professional Teacher Education at the time of the change must transfer to the new curriculum. Students already admitted to Upper Division Professional Teacher Education may choose to transfer to the new curriculum.

FIELD-BASED EXPERIENCES

Pre-clinical: Prospective teacher candidates enrolled in teacher education courses that require laboratory assignments are placed in local schools with certified teachers according to their major areas. Prospective teacher candidates complete 179 hours of field-based experiences that are directly linked to specific courses. Pre-clinical experiences begin during the freshman year in EDUC 0114 Freshman Seminar in Teaching II and continue throughout the sophomore,

junior, and senior years. Pre-clinical experiences are directly linked to the curriculum and methods courses. All transportation arrangements and costs associated with pre-clinical experiences are the responsibility of the student. Each student must take a Tuberculin Test (TB) within 1 year prior to being placed for each field-based experience. Students must be fingerprinted prior to placements in the schools. Fingerprints should be taken with the results submitted to the Field-based Coordinator the semester students are enrolled in EDUC 0113. A complete description of the requirements for the field-clinical program is outlined in the *Teacher Education Handbook.*

Seven-day Pre-Internship. Teacher education majors are required to complete 56 clock hours of field-based experiences over a seven-day period in school settings approved at least one month in advance by Tuskegee University's Department Chairs, the Coordinator of Field-based Experiences, and the Dean of the College of Arts and Sciences. The Seven-day Pre-internship program is designed to maximize prospective interns' experiences in diverse settings, and in settings that may be similar to where the student will be placed for student teaching/internship. Students must apply for the Seven-day Pre-Internship after admission to the Upper Division Professional Teacher Education Program and at least one semester prior to applying for Student Teaching/Internship. Transportation arrangements and all costs associated with the Seven-day Pre-Internship are the responsibility of the student. The Seven-day Pre-Internship must be in school settings with diverse populations. Students' Seven-day Pre-Internship must not conflict with other field assignments or classes in which they are enrolled. Application packets with guidelines for the Seven-day Pre-Internship are available in the Office of the Dean, College of Arts and Sciences, John A. Kenney Hall.

Student Teaching/Internship. Student Teaching/Internship is the culminating field-based experience and capstone course for teacher candidates. Teacher candidates must concurrently enroll in the appropriate EDUC 0443 Student Teaching/Internship course and EDUC 0430 Student Teaching Seminar. The internship experience at Tuskegee University is 14 weeks, with one week of examination time. The internship experience is not limited to one classroom or grade level, with the internship experience progressing to the full responsibility of the classroom teacher by the last 6 weeks of the 14 week internship. Interns, therefore, satisfy the requirement of spending 20 full days including at least 10 consecutive days of full-time teaching during their internship. Interns in the Physical Education P-12 program have a split internship to gain experiences at the P-6 level and the 7-12 grade levels. For elementary programs, interns will have a split internship unless it can be verified through assessment documents that substantial field experiences were completed at both upper and lower grade levels during preclinical experiences. Secondary majors have experiences over several grade levels and/or over different subject matter content within their major during their internship placement. It is the intern's responsibility to make transportation arrangements and pay all of their expense for their student teaching internship. Application packets are available in the Office of the Dean, College of Arts and Sciences, John A. Kenney Hall. Students planning to student teach in the fall must submit applications on or before March 15 of the preceding semester. Students planning to student teach in the spring must submit their applications on or before October 15 of the preceding fall semester. Late applications will be returned and must be updated and resubmitted on or before the next application deadline. No student may register for the internship semester if the student has not been officially admitted to the Upper Division Professional Teacher Education Program, is on academic probation, and/or has less than the required grade point average in general studies,

professional studies, and in the teaching field. To enroll in the internship courses EDUC 0443 and EDUC 0430, a student must have met the following requirements:

1. Admission to the Upper Division Professional Teacher Education Program
2. Completion of all requirements for the Seven-Day Pre-Internship prior to the internship application deadline. Seven-day Pre-Internship documents must be attached to the Student Teaching Application
3. A minimum GPA of 2.50 overall
4. A minimum GPA of 2.50 in professional studies
5. A minimum GPA of 2.50 in teaching field
6. A passing score on the Alabama Prospective Teacher Test (APTT)
7. A passing score on PRAXIS II in the major area

To apply for admission to student teaching/internship, students must submit:

1. A word processed application in triplicate
2. A word processed autobiography
3. Written reflective responses to questions about prior teaching experiences (questions are included in the application packet)
4. A Health certification signed by a licensed physician dated within the past 12 months, and mailed by the physician to: Office of the Dean, College of Arts and Sciences, John A. Kenney Hall, Tuskegee University, Tuskegee, AL 36088. *To ensure a timely arrival of the Health Certification, applicants should initiate health clearance procedures at least one month prior to the deadline for accepting applications.*
5. Three 2" X 3" professional photographs
6. A curriculum balance sheet signed by the student, advisor, Department Chair, and the Dean that clearly shows the applicant's GPA in general studies, professional studies, and the teaching field
7. Copies of test results on the Alabama Prospective Teacher Test and PRAXIS II

TEACHER CERTIFICATION

The Dean of the College of Arts and Sciences recommends graduates of the Tuskegee University Teacher Education Program for certification to the Alabama State Board of Education. Application packets for Alabama certification are available in the Dean's office. In order to be eligible to be recommended for teacher Class B certification in Alabama, candidates must satisfactorily complete a state approved program with at least an overall 2.50 GPA in the teaching field and in professional studies with no grades below "C." Candidates also must pass the Alabama Prospective Teacher Test (APTT), the appropriate PRAXIS II test, and the appropriate section of EDUC 443 Student Teaching Internship and EDUC 0430 Student Teaching Seminar, with grades of "A" or "B." In addition to the PRAXIS II teaching field test, candidates must pass Comprehensive Examination, Part I, and Comprehensive Examination, Part II, designed to cover state approved professional studies and the teaching field standards. In order to be recommended for certification in Alabama, English Language Arts Education majors must declare and complete a second degree in English; General Science Education majors must declare and complete a second degree in Biology, Chemistry or Physics, and majors in Mathematics Education majors must declare and complete a second degree in Mathematics. Teacher candidates seeking certification in another state should contact that state's department of education. Other states may have different certification requirements.

CURRICULUM AND INSTRUCTION

MISSION STATEMENT

The primary mission of the Department of Curriculum and Instruction is to admit qualified teacher candidates who are committed to academic excellence in order to be successful in general studies, professional studies, content teaching fields, field-clinical experiences, student teaching/internship, and professional involvement with schools and communities. The department is committed to developing teacher candidates to their full potential to become "highly qualified" teachers, administrators, and university professors capable of providing effective professional leadership roles at local, state, national, and world communities.

The Mission Statement represents, in part, "one" historical perspective upon which Tuskegee University was founded. Teacher Education has been a primary endeavor of Tuskegee University since its founding in 1881 as Alabama's first normal school for the "training" of Negro teachers. Baccalaureate degree programs in education were established in 1927 and, over the years, Tuskegee University's teacher education graduates have served the profession in every region of the country and abroad.

GOALS

Teacher candidates admitted to the Professional Teacher Education Program (upper division) at Tuskegee University will:

- Demonstrate knowledge of the content and content-related pedagogy of the teaching field.
- Be able to organize a student-centered and democratic classroom.
- Apply principles of human growth and development and constructivist learning, and, as a result of reflection, critical thinking, and sound reasoning, adjust teaching methodologies to meet the needs of all students.
- Work with the community within and outside the school environment.
- Continue as lifelong learners who seek new knowledge and experiences.
- Engage in professional development and scholarly endeavors that enhance teaching, student learning, schools, and the profession.

OBJECTIVES

1. To provide perspective teacher candidates with the required content knowledge, skills, technological skills, dispositions, and pedagogical approaches for effective classroom instruction and student learning in the content areas of elementary education, mathematics education, general science education, and English/ Language arts education.
2. To provide perspective teacher candidates field-clinical experiences in public and private schools in the State of Alabama commencing the freshman year with expanding experiences throughout the sophomore, junior, and seniors years.
3. To provide each perspective teacher candidate with a full semester, capstone internship/student teaching experience under the supervision of a fully certified, master teacher in his/her academic discipline.

4. To expose prospective teacher candidates to current educational research and products of research in teacher education.

5. To prepare teacher candidates for graduate school with appropriate content knowledge and pedagogical approaches to ensure their success in preparing for advanced academic degrees (masters, educational specialists, and doctoral) to serve as teachers, school counselors, assistant principals, principals, superintendents, university professors, and other related areas.

STUDENT LEARNING OUTCOMES

Teacher candidates admitted to the upper division of Tuskegee University's Professional Teacher Education program will:

- Demonstrate knowledge of their content teaching fields and apply appropriate pedagogy.
- Demonstrate the ability to plan, implement, and evaluate instruction appropriate for student learning in their teaching fields.
- Demonstrate the ability to use data, manipulatives, and interactive technology to enhance instruction and improve student learning.
- Plan, implement, monitor, and evaluate students' mastery of content, provide feedback, and adjust instructional plans to meet the needs of all students.
- Continuously conduct action research as a reflective practitioner by planning, implementing, monitoring and evaluating students' mastery of content.
- Engage in action research.
- Demonstrate mastery of the professional knowledge, skills, and dispositions required to effectively work with students, parents, colleagues, and school officials.
- Effectively organize and manage the classroom and students' behavior to create a well-functioning learning environment conducive to diverse learners.
- Incorporate active teaching methodologies utilizing a variety of instructional tools, content materials, and technology appropriate for their teaching fields.

LIST OF DEGREES OFFERED

The Department of Curriculum and Instruction offers the **Bachelor's of Arts** degree in each of the following areas:

Elementary Education
English Language Arts Education
General Science Education
Mathematics Education

ACADEMIC PROGRAM DESCRIPTIONS

The Division of Education is the academic unit that prepares professional educators through its two departments: the Department of Curriculum and Instruction and the Department of Physical Education. Each department is administered by a Department Chair. A Coordinator is assigned to each degree program within the two departments with responsibility for monitoring each program's goals and objectives to ensure consistency with local, state, national, and professional standards.

To meet the goals and objectives of the Division of Education, teacher education candidates in the Department of Curriculum and Instruction are educated within a Constructivist Reflective Conceptual Framework. This framework provides a foundation for research on teaching and learning, expands the concept of "knowing," and makes a commitment to critical and reflective pedagogy, inquiry oriented teaching, and a problem-solving view of learning.

All Tuskegee University professional teacher education programs are accredited by the National Council for the Accreditation of Teacher Education (NCATE), regionally accredited by the Southern Association of Colleges and Schools (SACS), and approved by the Alabama State Department of Education (ALSDE) for Alabama Teacher Certification.

CURRICULUM FOR ELEMENTARY EDUCATION MAJOR (136 Hrs)

Freshman Year

1st Semester	Cr	2nd Semester	Cr
FPAR 0101 Art Appreciation	2	BIOL_____Elective (Adv. Appr.)	3
BIOL____Elective (Adv. Appr.)	3	BIOL LAB_____Elective (Adv. Appr.)	1
BIOL____Elective (Adv. Appr.)	1	EDUC 0114 Freshman Seminar	1
EDUC 0113 Freshman Seminar	1	ENGL 0102 English Composition	3
ENGL 0101 English Composition	3	HIST 210 or 211 History of the U. S.	3
HIST 0103 or 0104 World Civilization	3	MATH 0108 College Algebra and Trig II	4
MATH 0107 College Algebra and Trig I	4	OREN 0101 Orientation	1
OREN 0100 Orientation	1	PHED 0113 Movement & Games	1
PHED_____Elective (Adv. Appr.)	1	Humanities Core/Philosophy	3
Total Credits	19	Total Credits	20

Sophomore Year

1st Semester	Cr	2nd Semester	Cr
ENGL 0201 Adv. Composition	3	FPAR 0105 Art & Children	2
HLED 0212 Health Prog. Elem.	2	EDUC 0200 Intro to Media	3
MATH 0522 Math Methods for Teachers	4	EDUC 0203 Intro. Professional Ed.	1
PHYS 0210 Physical Science	3	ENGL_____Literature (Adv. Appr.)	3
POLS or ECON Elective	3	ENGL 0324 Speech Drama	3
SOCI____Elective (Adv. Appr)	3	PHYS 0211 Physical Science	3
Total Credits	18	MATH 0504 Intro to Applied Stat	3
		Total Credits	18

Junior Year

1st Semester	Cr	2nd Semester	Cr
ECYC 0210 Survey of Except.	3	ECYC 0313 Instructional Strat. Mild	3
EDUC 0309 Curriculum Prin. Elem.	3	EDUC 0314 Teaching Science N-6	3

GEOG 0333 or 00334 World Geography	3	EDUC 0422 Teaching Soc. Studies N-6	3
MUSC 0301 or 0302 Sch. Music	2	PSYC 0274 Educational Psychology	3
PHED 0213 Methods Teach. P. E.	2	PSYC 0303 Tests & Measurements	3
PSYC 0272 Child Psychology	3	EDUC 0521 Teaching Reading	3
Total Credits	16	Total Credits	18

Senior Year

1st Semester	**Cr**	**2nd Semester**	**Cr**
EDUC 0350 Foundations of Ed.	3	EDUC 0430 Teaching Seminar	2
EDUC 0420 Media & Technology	3	EDUC 443F Student Teaching	10
EDUC 0520 Children's Lit.	3	Total Credits	12
EDUC 0313 Teaching Math. N-6	3		
EDUC 0408 Language Skills & Lit.	3		
Total Credits	15		

* Placement determined by test results
# Grade of "C" or Above Required
Grade of "B" or Above Required

CURRICULUM FOR ENGLISH LANGUAGE ARTS EDUCATION MAJOR (135 Hrs)

Freshman Year

1st Semester	**Cr**	**2nd Semester**	**Cr**
EDUC 0113 Freshman Seminar	1	EDUC 0114 Freshman Seminar	1
ENGL 0101 English Composition	3	EDUC 0200 Intro to Media or CSCI 0100	2
FPAR or MUSC	2	ENGL 0102 English Composition	3
HIST 0103 or 0104 World Civilization	3	HIST 210 or 211 History of the U. S.	3
MATH 0107 College Algebra and Trig I	4	MATH 0522, 0525, or 0504	4
NAT. SCIENCE CORE/BIOL	3	NAT. SCIENCE CORE/BIOL	3
OREN 0100 Orientation	1	OREN 0101 Orientation	1
PHED_____Elective (Adv. Appr.)	1	PHED____Elective (Adv. Appr.)	1
Total Credits	18	Total Credits	17

Sophomore Year

1st Semester	**Cr**	**2nd Semester**	**Cr**
ENGL 0201 Adv. Composition	3	ENGL 0203 Intro to Prof. Ed.	1
ENGL 0207 American Lit	3	ENGL 0208 American Lit	3
ENGL 0301 Survey of English Lit	3	ENGL 0209 Intro to Journal	3
HUMANITIES CORE/PHIL	3	ENGL 0302 Survey to Engl. Lit	3
PHYS____Elective (Adv. Appr.)	3	ENGL 0324 Speech Drama	3
SOCI 0240 or 0241	3	POL or ECON	3
Total Credits	18	PSYC 0274 Educational Psyc.	
		Total Credits	19

Junior Year

1st Semester	**Cr**	**2nd Semester**	**Cr**

EDUC 0330 Curr. & Principles	3	ECYC 0313 Instructional Strat. Mild	3
ENGL 0205 World Literature	3	EDUC 0441 Meth Teach Sec.	3
ENGL 0410 Literary Theory	3	EDUC 0421 Reading Content	3
ENGL Speech Elective	3	ENGL 0400 Senior Seminar	3
ENGL 0303/0304 Shakespeare	3	ENGL 0411 Ling./His. Engl.	3
PSYC 0273 Adult/Human Development	3	PSYC 0303 Tests & Measurements	3
Total Credits	18	Total Credits	18

Senior Year

1st Semester	**Cr**	**2nd Semester**	**Cr**
EDUC 0350 Foundations of Ed.	3	EDUC 0430 Teaching Seminar	2
EDUC 0420 Media & Technology	3	EDUC 443D Student Teaching	10
ENGL 0300 or Above Lit Elective	3	Total Credits	12
E NGL 0300 or Above Lit Elective	3		
HUMN Elective	3		
Total Credits	15		

* Placement Determined by Test Results
# Grade of "C" or Above Required
Grade of "B" or Above Required
@ MATH 0107 College Algebra or Higher Required

CURRICULUM FOR GENERAL SCIENCE EDUCATION MAJOR (138 Hrs)

Freshman Year

1st Semester	**Cr**	**2nd Semester**	**Cr**
BIOL 0100 Freshman Seminar	1	BIOL 0140 Environmental Biology	3
BIOL 0120 Organismic Biology	3	BIOL 0141 Env Biology Lab	1
BIOL 0121 Organismic Biology Lab	1	EDUC 0114 Freshman Seminar	1
EDUC 0113 Freshman Seminar	1	ENGL 0102 English Composition	3
ENGL 0101 English Composition	3	HIST 0104 World Civilization.	3
HIST 0103 World Civilization	3	MATH 0108 College Alg and Trig II	4
MATH 0107 College Algebra and Trig I	4	OREN 0101 Orientation	1
OREN 0100 Orientation	1	PHED_____Elective (Adv. Appr.)	1
PHED_____Elective (Adv. Appr.)	1		
Total Credits	18	Total Credits	17

Sophomore Year

1st Semester	**Cr**	**2nd Semester**	**Cr**
BIOL 0230 Cell Biology	3	BIOL 0301 Micro Biology	3
BIOL 0231 Cell Biology Lab	1	BIOL 0303 Micro Biology Lab	1
EDUC 0203 Intro to Professional Education	1	ENGL_____Literature (Adv. Appr.)	3
SOCI Elective	3	PSYC 0274 Educational Psychology	3
ENGL 0201 Adv. Composition	3	Humanities Core/FPAR or MUSC	3

ENGL 203/204 Technical Writing	3	EDUC 0420 Media & Technology	3
PHYS 0301/310 General Physics	3	PSYC 0272/ 0377Adolescent/Human Dev	3
PHYS 0303/0313 General Physics Lab	1		
Total Credits	18	Total Credits	19

Junior Year

1st Semester	**Cr**	**2nd Semester**	**Cr**
CHEM 0231 General Chemistry	4	CHEM 0232 General Chemistry	3
CHEM 0233 General Chemistry Lab	1	CHEM 0234 General Chemistry Lab	1
EDUC 0330 Curriculum Prin in Science	3	BIOL 0315 Gen Neurobiology (Elec)	4
BIOL 0309 Genetics	4	PHYS 0302 or 0311General Physics	3
EDUC 0440 Methd Teaching Sec. Schools	3	PHYS 0304 or 0314 Gen Physics Lab	1
EDUC 0350 Foundations of Education	3	PSYC 0303 Tests & Measurements	3
Total Credits	18	ECYO 0313 Instructional Strat. Mild	3
		Total Credits	18

Senior Year

1st Semester	**Cr**	**2nd Semester**	**Cr**
BIOL 0368 Intro to Bioinform (or Elec)	3	EDUC 0430 Teaching Seminar	2
BIOL 0340 Cell Biology (or Elective)	3	EDUC 443F Student Teaching	10
BIOL 0401 Seminar in Biology	3	Total Credits	12
CHEM 0320 Organic Chemistry	3		
CHEM 0322 Organic Chemistry Lab	3		
EDUC 0421 Reading in Content Areas	3		
Total Credits	18		

* Placement Determined by Test Results
# Grade of "C" or Above Required
Grade of "B" or Above Required
@ MATH 0107 College Algebra or Higher Required

PROGRAM CURRICULUM FOR MATHEMATICS EDUCATION MAJOR (134 Hrs)

Freshman Year

1st Semester	**Cr**	**2nd Semester**	**Cr**
EDUC 0113 Freshman Seminar	1	EDUC 0114 Freshman Seminar	1
ENGL 0101 English Composition	3	ENGL 0102 English Composition	3
HIST 0103 or 0104 World Civilization	3	HIST 210 or 211 History of the U. S.	3
HUMANITIES CORE/FPAR/MUSC	2	MATH 0108 College Alg and Trig II	4
HUMANITIES CORE/PHIL	3	NAT. SCIENCE/CORE BIOL	3
MATH 0107 College Algebra and Trig I	4	NAT. SCIENCE/CORE BIOL Lab	1
OREN 0100 Orientation	1	OREN 0101 Orientation	1
PHED_____Elective (Adv. Appr.)	1	PHED____Elective (Adv. Appr.)	1
Total Credits	18	Total Credits	17

Sophomore Year

1st Semester	Cr	2nd Semester	Cr
ENGL 0201 Adv. Composition	3	FPAR/MUSC	2
ENGL 0205 or 0206	3	CSCI 0100 Intro to Programming	3
MATH 0207 Calculus I	4	EDUC 0203 Intro. Professional Ed.	1
NAT. SCIENCE CORE/BIOL	3	EDUC 0421 Reading Content	3
NAT. SCIENCE CORE/BIOL Lab	1	ENGL____Speech (Adv. Appr.)	3
SOCI SCIENCE CORE	3	MATH 0208 Calculus II	4
Total Credits	17	PSYC 0274 Educational Psyc.	3
		Total Credits	19

Junior Year

1st Semester	Cr	2nd Semester	Cr
EDUC 0420 Media & Technology	3	ECYC 0313 Instructional Strat. Mild	3
EDUC 0330 Curriculum Prin. Math	3	MATH 0408 Modern Algebra	3
MATH 0209 Calculus III	4	MATH 0507 Probability & Statistics	3
MATH 0407 Linear Algebra	3	MATH 0417 Modern Geometry	3
MATH 0307 Differential Equations	3	MATH 0506 or 0510	3
PSYC 0272 Child Psychology	3	PSYC 0303 Tests & Measurements	3
Total Credits	19	Total Credits	18

Senior Year

1st Semester	Cr	2nd Semester	Cr
EDUC 0439 Methods of Teaching	3	EDUC 0430 Teaching Seminar	2
EDUC 0350 Foundations of Education	3	EDUC 443A Student Teaching	10
MATH 0304 History of Mathematics	3	MATH 0452 Seminar II	1
MATH 0451 Seminar I	1	Total Credits	13
MATH 0505 Advanced Calculus	3		
Total Credits	13		

* Placement determined by test results
# Grade of "C" or Above Required
Grade of "B" or Above Required

COURSE DESCIPTIONS

#Open only to Teacher Education Majors

****Laboratory (Lab) refers to teacher candidates who are assigned to public schools to work with students in grades K-12 under the supervision of a certified teacher as a required component of required methods of teaching courses.**

ECYO 0210 THE EXCEPTIONAL INDIVIDUAL. 1ST Semester. 3 Credits. Examines incidence, prevalence and educational implications of major exceptionalities as well as the impact of cultural and socioeconomic factors on learning. Examines strategies for modifying the

curriculum so that exceptional learners may participate in assessment activities through the use of different formats or times

#ECYO 0313 Instructional Strategies for Exceptional Learners. 2nd Semester. Lab, 3 credits. Methods, strategies and technology for teaching exceptional learners. Modification of instructional strategies so that exceptional learners may participate in learning activities in the same manner and at the same time as other students. Prerequisite: EDUC 0210

EDUC 0113 Freshman Seminar in Teaching I. 1st and 2nd Semesters. 1 credit. - A general orientation to programs, policies, and procedures in the Division of Education. In this course, the students will be given skills and standards concerning the following: (1) teaching as a profession, (2) essential knowledge needed to teach, (3) ideas and events that help shape education in the United States, and some of the social realities that teachers are confronted with in schools today.

#**EDUC 0114 Freshman Seminar in Teaching II. 1st and 2nd Semesters. 1 credit. A general orientation to public school education, characteristics of good schools, different teaching methods, and teachers' professional responsibilities. Emphasis on teacher competency, dispositions, and techniques for self-evaluation. Prerequisite: EDUC 0113

#EDUC 0200 Intro to Media and Technology in the Classroom. 2nd semester, 3 credits. Introduction to a variety of media formats and emerging technologies, and their appropriate use in teaching and learning. Introduces students to basic technological skills as well as the utilization of and production of classroom media. Students will also be introduced to online resources available at Tuskegee University.

#**EDUC 0203 Introduction to Professional Education. 1st and 2nd Semesters. Lab. 1 credit. Required of all education students as a requisite for beginning the professional education sequence. Survey of the field of education as a profession, with emphasis on competencies all teachers must know and be able to do. Each student is required to submit an Application for Admission to Professional Education as requisite for completion of the course. Prerequisite: EDUC 0114, an average GPA of 2.5 or better in all course work, completed General Studies or enrolled in last courses while taking EDUC 0203.

#**EDUC 0309 Curriculum Principles for Elementary Education. 1st Semeester. Lab, 3 credits. Introduction to basic considerations in curriculum development for elementary education, including: factors affecting curriculum goals and objectives, organizing for teaching and learning, and classroom management. Prerequisite: EDUC 114; Co-requisite: EDUC 0330

#**EDUC 0313 Teaching Mathematics. K-6. 1st Semester. Lab, 3 credits. Methods of teaching mathematics to kindergartners and elementary school children. Emphasis is placed on “student mastery” of mathematical content appropriate for grades K-6 as well as integrating mathematics with other curriculum areas. Prerequisites: 12 hours of math to include MATH 0107 College Algebra and Trig I; EDUC 309.

#**EDUC 0314 Teaching Science K-6. 2nd Semester, 3 Credits. Methods of teaching science to kindergartners and elementary school children. Emphasis is placed on “student mastery” of

science content appropriate for grades K-6 as well as integrating science with other curriculum areas. Prerequisites: EDUC 309.

EDUC 0321. Introduction to Reading. 1st Semester, 3 credits. Foundations for learning to read and learning to teach someone how to read, including: (1) major factors that influence reading ability, (2) word analysis and comprehension, and (3) the interrelatedness of reading, other language arts, and other areas of the curriculum. This course is useful to future teachers and college students who wish to serve as reading tutors. Prerequisite: junior or senior classification

#**EDUC 0330. Curriculum and Principles of Secondary Education. 1st Semester, Lab, 3 Credits. Principles, history, and nature of secondary education; relationship of basic curricula principles to specific content areas. Prerequisite: EDUC 0114. *Majors must register for the following accordingly: *330A Mathematics Education, *330C General Science Education, *330D English Language Arts Education.

*EDUC 0350 Introduction to Foundations of Education. 1st Semester, Lab, 3 credits. A broad-based overview of the historical, philosophical, socio-cultural, financial, and legal foundations of education, and their implications for educational practices. Course content also includes students' and teachers' legal rights and responsibilities, the Americans with Disabilities ACT of 1990 (ADA), the Individuals with Disabilities Education Act (IDEA), and Section 504 of the Rehabilitation Act of 1973. Where appropriate, global perspectives are included. Prerequisite: admitted to the Upper Division in Teacher Education.

#**EDUC 0408 Language Skills and Literature for Children. 1st Semester, Lab, 3 Credits. Methods and materials for teaching language arts to kindergarten and elementary children. Topics covered include: Language Development, Drama, Speaking and Listening, Reading, Spelling, Handwriting, Composition, Grammar, Usage and Punctuation, Evaluation and Interpretation of the Language Arts Program. Prerequisite: EDUC 0309.

*EDUC 0420 Educational Media and Technology. 1st Semester, Lab, 3 Credits. Designed to prepare students for technological applications specific to the field of teaching. Students will demonstrate facility in using a variety of educational media for use in achieving educational objectives. Students will build upon previously acquired skills and learn to integrate these skills into their lesson plans and curricula activities. Prerequisite: EDUC 0203, EDUC 0309. Admitted to Upper Division.

#**EDUC 0421. Reading in the Content Areas. 2nd Semester, Lab, 3 Credits. Methods and materials for helping individuals develop skills needed for reading in content areas, including the study of current theories and research supporting the instructional strategies. Prerequisite: EDUC 0203.

#**EDUC 0422 Teaching Social Studies K-6. 2nd Semester - Methods of teaching social studies to kindergartners and elementary school children. Emphasis on integrating social studies with other curriculum areas. Prerequisites: EDUC 309.

*EDUC 0430 Student Teaching Seminar. 1st and 2nd Semesters. 2 credits. Records and reports, school programs, teacher activities and responsibilities, legal aspects of teaching, student organizations, parent counseling, community relations, employment interviews, professional ethics. Emphasis on Part II of Comprehensive Evaluation (portfolio). Prerequisite: Acceptance of Intern Application with completion of all course work on respective curriculum balance sheets with required grades, passing APTTP and PRAXIS II. Co-requisite: Taken concurrently with student teaching.

#**EDUC 0438. Methods of Teaching In Secondary Schools: Mathematics Education. 2nd Semester. Lab, 3 credits. Selection, evaluation, organization and presentation of instructional materials to teach mathematics in secondary schools. This course will include experiences in planning for instruction as well as examining a variety of teaching strategies for use in junior and senior high schools. This course will provide for familiarity with current theories and research supporting the strategies for teaching secondary school mathematics. Mathematics Education majors only. Prerequisite: EDUC 0330.

#**EDUC 0440. Methods Of Teaching Science in Secondary Schools: General Science Education. 2nd Semester. Field Clinical, 3 credits. Selection, evaluation, organization and presentation of instructional materials to teach general science in secondary schools. This course will include experience in planning for instruction as well as examining of a variety of teaching strategies for use in junior and senior high schools. This course will provide for familiarity with current theories and research supporting the strategies for teaching secondary school science areas. General Science Education majors only. Prerequisite: EDUC 0330

#**EDUC 0441. Methods Of Teaching In Secondary Schools: English Language Arts Education. 2nd Semester. Lab, 3 credits. Selection, evaluation, organization and presentation of instructional materials to teach English language arts in secondary schools. This course will include experience in planning for instruction as well as examining a variety of teaching strategies for use in junior and senior high schools. This course will provide for familiarity with the current theories and research supporting the strategies for teaching secondary school English language arts. English Language Arts Education majors only. Prerequisite: EDUC 0330

#**EDUC 0443 Student Teaching. 1st and 2nd Semesters. 10 Credits. Student Teaching/Internship involves teaching a full semester under the supervision of cooperating teachers, a university supervisor, and the school principal. Prerequisite: approval of Application for Student Teaching; completion of all coursework on respective curriculum balance sheets with grades of C or higher, a cumulative GPA of 2.50 or higher in the major, passing APTTP, and PRAXIS II. Co-requisite: EDUC 0430.

*Majors must register for the following accordingly: EDUC 443A Mathematics Education; EDUC 443C General Science Education; EDUC 443D English Language Arts Education; EDUC dd3F Elementary Education; EDUC 443H Physical Education

EDUC 0460 Special Problems and Independent Study. On Demand. 1 – 4 credits. The student is given an opportunity to explore a special educational problem.

COURSES FOR ADVANCED UNDERGRADUATE AND GRADUATE STUDIES

#**EDUC 0520 Children's Literature. 1st Semester, Lab., 3 Credits. Examination and evaluation of children's literature includes the following: picture books, traditional literature, information books, biography, modern fantasy, poetry, contemporary realistic fiction, and historical fiction. Pre-requisite: EDUC 0309

#**EDUC 0521 The Teaching of Reading. 1st Semester, Lab., 3 Credits. Methods and materials for teaching and assessing reading in grades kindergarten through junior high school.

EDUC 0590. Institutes and Special Programs. On Demand. Lab, 1-6 credits. Seminars, field work, distance learning, and related activities. Designed to enhance advanced knowledge of a particular educational topic.

EDUC 0599. Workshops. On Demand 1-6 credits.

EDUC 0606. Independent Study in a Specialized Area. On Demand. 2-4 credits. Opportunity to explore an educational topic or engage in problem-based learning. Work may be done is residence, through field study, or distance learning. Students must register for: EDUC 606B Reading or EDUC 606C General Science

Psychology 0274Educational Psychology - Introduction to the use of basic psychological principles as Educational tools and the applications of principles of learning to the teaching-learning process. Emphasis on identification, analysis modification, and control of behavior relevant to desired social, academic, and adjustive outcomes.

GENERAL EDUCATION/SPECIFIC DEGREE REQUIREMENTS

The General Education Requirements are the same for each degree program in the Department of Curriculum and Instruction.

Freshman Admission Requirements

- ACT score of 21 or above or SAT score 1000 or above
- Overall High School GPA 3.00 or above
- Tuskegee University's application for admission
- High school transcript that shows satisfactory performance in English, mathematics, science, and social science

Requirements for Admission of Transfer Students and Upperclassmen

- A transcript of all work completed at the college level
- Transfer GPA of a minimum of 2.50 overall in general studies, professional studies, and teaching field. Coursework completed at other universities/colleges will be considered for teacher education transfer credits.
- A grade of "C" or higher is required in English and reading.
- "D" grades will NOT be considered for transfer credits.

Admission to the Professional Teacher Education Program: Procedures and Requirements

- Students must complete and submit a word processed application.
- A Curriculum Balance Sheet that includes grades in all courses completed in the program must be checked and signed by the advisor, the applicant, and Department Chair. The Curriculum Balance sheet must clearly verify the following:
  - Completion of 60 or more hours General Studies courses based upon the approved curriculum requirements with an overall university GPA of 2.50.
  - Minimum 2.50 grade point average (GPA) in General Studies.
  - Minimum 2.50 GPA in Professional Studies courses
  - Minimum 2.50 GPA in the Teaching Field courses
  - Minimum grade of "C" required in designated courses
  - Satisfactory score on both parts of the Tuskegee University English Proficiency Examination.
- A two-page word processed, double-spaced, and edited autobiography
- Two letters of recommendations
- Health certification signed by a licensed physician

A student will be counseled out of the teacher education program, or denied admission to the Professional Teacher Education Program if:

- The student has earned during one semester two grades of "E" or "D" when "C" is the minimum passing grade in specific subjects listed as essential for the chosen field of specialization.
- The student has earned one grade of "E" or "D" when "C" is the minimum passing grade in each of two consecutive semesters in subjects listed as essential for the chosen field of specialization.

GRADUATION REQUIREMENTS

Graduation requirements are the same for all degree programs in the Department of Curriculum and Instruction.

- Satisfactory completion of a state-approved program with a minimum overall university GPA of 2.50, a 2.50 GPA in General Studies, the Teaching Field and a 2.50 GPA in Professional Studies, with no grade below a "C" in Professional Studies and in the teaching field. (All GPAs are calculated on a 4-point scale).
- Satisfactory completion of the internship with a minimum grade of "B" in both EDUC 0430 Student Teaching Seminar and EDUC 0443 Student Teaching.
- Passing score on professional studies and teaching field assessment instruments: Comprehensive Examination: Part I (Performance Observation) and Comprehensive Examination: Part II (Portfolio Assessment).
- A passing score on the APTTP test and the appropriate PRAXIS II test.

PHYSICAL EDUCATION

The Department of Physical Education offers both a professional preparation program which leads to the degree of Bachelor of Arts in Physical Education and a physical education service program designed to meet the general education requirements of the University.

The professional preparation curriculum is State approved as satisfying all State of Alabama's requirements for teacher certification. The curriculum is designed to prepare students to become highly competent for careers as physical educators and education leaders, in both public and private schools. The curriculum provides students with a broad cultural background through two years of general education. Upon the successful completion of the general education requirements both public and meeting all professional preparation admission criteria, students are eligible to apply for admission to professional education in physical education.

The professional preparation curriculum offers background preparation to pursue study, certification and career opportunities in related fields of health, recreation, camping, physical fitness center, sports medicine, physical therapy, corrective therapy, recreation therapy, national park careers and athletics.

The general aims of the department's service program are to contribute to the total development of the students so that he or she may function effectively in personal; and social relationships. Emphasis is placed upon: (1) the development of student appreciation of regular participation in wholesome physical activities; (2) the learning of physical skills so that participation may be enjoyable; (3) the utilization of physical activities as a means of effective desirable changes in individuals; and (4) revitalizing the students' interest in their own health, and to orient this interest toward their community and families. The pursuit of these aims contributes to the realization of the general mission and goals of Tuskegee University.

HEALTH EXAMINATION

All University students whose physical and/or medical examination reveals conditions that prohibit participation in regular physical education classes will be assigned to PHED 0120 or 0121. A written statement from the attending physician must be presented to the Head of the Department of Physical Education. All advisors and Physical Education Instructor are required to refer and report all known such cases to the Head of the Department Physical Education immediately for further arrangements to meet the students University physical education requirements.

SERVICE COURSES FOR THE TUSKEGEE UNIVERSITY REQUIRED PHYSICAL EDUCATION SERVICE PROGRAM COURSE OFFERINGS DESIGNED FOR NON-PHYSICAL EDUCATION MAJORS

PHED – 0117	**AEROBICS**	**PRACT. 2, 1 cr.**
PHED - 0120	**ADAPTIVE PHYSICAL EDUCATION**	**PRACT. 2, 1 cr.**
PHED - 0121	**APTIVE PHYSICAL EDUCATION**	**PRACT. 2, 1 cr.**
PHED - 0130	**BADMINTON**	**PRACT. 2, 1 cr.**
PHED - 0133	**TENNIS**	**PRACT. 2, 1 cr.**
PHED - 0140	**SWIMMING**	**PRACT. 2, 1 cr.**
PHED - 0150	**FUNDAMENTALS OF DANCE I**	**PRACT. 2, 1 cr.**

PHED - 0162	**BASKETBALL**	**PRACT, 2, 1 cr.**
PHED - 0167	**SOFTBALL**	**PRACT. 2, 1 cr.**
PHED - 0170	**VOLLEYBALL**	**PRACT. 2, 1 cr.**
PHED - 0184	**GOLF**	**PRACT. 2.1 cr.**

CURRICULUM FOR PHYSICAL EDUCATION MAJORS
139 SEMESTER CREDIT HOURS

FRESHMAN YEAR

1st Semester	Cr.	2ND Semester	Cr.
BIOL 0230 Cell & Genetic Biology #G@	3	BIOL 0120 Organ Bio #G	3
BIOL 0231 Cell & Genetic Bio #G@	1	BIOL 0121 Organ Bio Lab #G@	1
EDUC 0113 Fresh Sem in Teach I #P	1	EDUC114 Fresh Sem Teach II #P	1
ENGL 0101 English Comp I *#G@	3	ENGL 0102 Eng Comp II*#G @	3
HIST 0103/104 World Civ. I & II#G@	3	HIST 210/211 His USI&II*#G@	3
MATH 0107 College Alg & Trig **#G	4	HLED 0101 Cont HealthProb #G	2
OREN 0100 Freshman Orientation #	1	OREN 0101 Freshman Orien #	1
PHED 0167 Softball#T	1	FPAR 0101 Art Appr @	2
PHED 0140 Swimming Beginning	1	PHED 0170 Volleyball #T	1
TOTAL	18	PHED 0162 Basketball	1
		TOTAL	18

SOPHOMORE YEAR

1st Semester	Cr.	2ND Semester	Cr.
CHEM 0221 Organic/Biology #G@	3	ECON 0201/202 Prin Econ#G@	3
CHEM 0223 Chem Lab #G@	1	EDUC 0203 Intro Prof Educ #P	1
ENGL 0201/202 Advance Comp #G@	3	EDUC0200IntroMediaTech#P@`	3
ENGL 0324 Speech & Drama@	3	ENGL 0205/206 World Lit #G@	3
POLS 0200 Intro Political Sci #G@	3	SOCI 0240 Intro Sociology #G@	3
PSYC 0377 Human Development #P@	3	PSYC 0274 Educ Psy #P@	3
PHED 133 Tennis #	1	PHED 0162 Basketball #T@	1
PHED Golf #T	1	PHED 0130 Badminton #T@	1
TOTAL	18	TOTAL	18

JUNIOR YEAR

1st Semester	Cr.	2ND Semester	Cr.
ANAT&PHYSI 0201 +#T	4	ANAT&PH$1 0202 +#T	4
ECYO 0210 Exceptional Ind. +#P	3	PHED310MethPhedP-12 +#P	3
EDUC 0350 Intro Found Educ +#P	3	PHED 412 HistAdmin +#T	3
PHED 0307 School Program +#P	3	PHED0401 Mot Learning +#T	3
PHYS 0301 Elm Gen Physics +#T@	3	PHED 0113 Mov Games +#T	1
PHYS 0303 Physics Lab +#T@	1	EDUC 0421 Reading Con +#T	3
PHED 0104 Track & Gymnastics	1	PHED 0184 Golf +#T	1
TOTAL	18	TOTAL	18

SENIOR YEAR

1st Semester	Cr.	2ND Semester	Cr.

EDUC 0420 Educ Tech +#P	**3**	**Educ430 StuTeach Sem +##P**	**2**
PHED 0405 Tests/Measure +#P	**3**	**Educ 0443H Stu Intern +##P**	**10**
PHED 0406 Adaptive Phed +#T	**3**	**TOTAL**	**12**
PHED 0315 Kinesiology +#T	**3**		
PHED 0410 Coach Ath. Sports	**2**		
PHED 0417 Meth Teach Dance +#T	**2**		
PHED 0419 Orienteering +#T	**2**		
TOTAL	**18**		

*** - Placement determined by test results.**
G – General Studies Requirements
**** - Mathematics courses below MATH 107 College Algebra & Trig I**
P – Professional Studies Requirements are prerequisite to MATH 107 and do not count toward
T – Teaching Field Requirements graduation in the Physical Education Curriculum
@ --Core Curriculum Requirement
 # -Grade of "C" or Above Required
--Grade of "B" or Above Required
Based on SAT/ACT results, a student may be required to take Reading 101 and/or Reading 102. Each Reading course yields one hour credit and must be taken during the first year of English 100, a 3 credit hour course, prior to taking English 101 and 102. A minimum grade of "C" is required in English 100, Reading 101 and 102 courses English 100 is a remedial course requirement and does not count toward graduation in the Physical Education Curriculum.

COURSE DESCRIPTIONS

Health

***Open Only to Teacher Education Majors**

*HLED 0101. CONTEMPORARY HEALTH PROBLEMS. 2nd Semester Lect. 2, 2credits.Scientific discovery and recent progress in health sciences as an approach to the solution of health problems. Education Majors Only

*HLED 0212. HEALTH PROGRAM FOR THE ELEMENTARY SCHOOL CHILD. 1st Semester. Lect. 2, 2 credits. Use of progressive teaching methods and modern teaching aids in health education on the elementary school level. Participation in teaching demonstrations and observations of school programs are included as course projects. Elementary Education Majors Only.

PHYSICAL EDUCATION

PHED 0104. TRACK AND GYMNASTICS I. 2nd Semester. Pract. 2, 1 credit. Designed to teach the fundamental skills and teaching methods in Gymnastics I and Track & Field I.

*PHED 0113. FUNDAMENTAL MOVEMENT/GAMES. 2nd Semester. Pract. 2, 1 credit. Study and learning the concepts and underlying principles of locomotive, non-locomotive and manipulative movement, such as agility, balance, flexibility, endurance and strength development. Also, the understanding of basic movement patterns which are necessary for specificity in skill development, and application of these principles to sports and dance. Students learn how to select, create and modify games of lower and intermediate organization as physical, social and motor learning development activity mediums. This includes basic concepts of games, leadership skills, teaching materials, use of play spaces, choosing equipment, practice in quiet, active and social games, relays stunts and contests, signing games and lead-up games. Prerequisite: Elementary and Physical Education Majors Only

PHED 0120. ADAPTIVE PHYSICAL EDUCATION. 1st Semester. Pract. 2, 1 credit. Students whose medical examinations indicate that they are physically unable to participate in strenuous physical activities shall be placed in this program. Prerequisite: Physician's Recommendation

PHED 0121. ADAPTIVE PHYSICAL EDUCATION. 2nd Semester. Pract. 2,1 credit. Students whose medical examinations indicate that they are physically unable to participate in strenuous physical activities shall be placed in this program. Prerequisite: Physician's Recommendation

*PHED 0213. METHODS IN TEACHING PHYSICAL EDUCATION IN NURSERY AND ELEMENTARY SCHOOLS. 1st Semester. Lect 2, 2 credits. Designed to provide knowledge and skills for teaching physical education on the nursery and elementary school levels. Open to elementary education, special education, early childhood majors nursery and head start personnel. Prerequisites: PHED 0113; Elementary Education Majors Only

*PHED 0307 THE SCHOOL PROGRAM. 2nd Semester. Lect. 3, credits. Emphasis will be on determining goals of instruction according to needs, developing an appropriate curriculum; individualizing instruction; record keeping; communicating with peers, professionals, **supervisors and parents; observation and field experiences at different grade levels. Prerequisites:** EDUC 0200; PSYC 0274; PSYC 0377; Co-requisites: EDUC 0350; Physical Education Majors Only

*PHED 0310 METHODS IN TEACHING PHYSICAL EDUCATION P-12. 1st. Semester. Lect. 3, credits. Subject matter materials, methods and principles for pre-school, nursery, elementary, middle, high school physical education; observation and field experiences at different grade levels. Prerequisite: EDUC 0200; EDUC 0350; PHED 0307 ; PSYC 0274; PSYC0377; Co-requisites: PHED 0401 Physical Education Majors Only

*PHED 0315. KINESIOLOGY. 2nd Semester. Lect. 3, 3 credits. Concepts and principles of anatomy and mechanics that are basic to analysis of human motion; application of principles and analyzing physical activity. Prerequisite: ANAT 0125; PSYC 0377; PHYS 0301; PHYS 0303 Corequisites: PHED 0401; Physical Education Majors Only

*PHED 0401. PSYCHOLOGICAL FOUNDATION OF MOTOR LEARNING.1st Semester. Lect. 2, Pract. 1, 3 credits. Learning process in motor skills as the foundation of teaching physical education activities; practical experience in testing theories: one hour per week. Prerequisite:

PSYC 0274; PSYC 0377; ANAT 0125; PHED 0307; Co-requisites: PHED 0310 Physical Education Majors Only

*PHED 0405. TESTS AND MEASUREMENTS IN HEALTH AND PHYSICAL EDUCATION. 2nd Semester. Lect. 3, 3 credits. Tests, measurements in health and physical education; methods of giving and scoring tests; uses of the results; evaluation of test materials and testing programs. Prerequisite: PSYC 0274; PSYC 0377; PHED 0307; PHED 0310; PHSI 0303; Co-requisites:

PHED 0406; Physical Education Majors Only

*PHED 0406. ADAPTIVE PHYSICAL EDUCATION. 1st Semester. Lect. 2, Pract. 1, 3 credits. Theory and mechanics of postural defects with exercises suitable for each condition; exercises for remedial work which enable the student to carry out the prescription of a physician and to organize and administer adaptive programs. Development of programs for the mentally and physically handicapped. Prerequisite: ANAT 0125; PHED 0315; PHED 0401; PHSI 0303; PSYC 0274; PSYC 0377; Co-requisites: PHED 0405 Physical Education Majors Only

*PHED 0410. COACHING OF ATHLETIC SPORTS. 1st Semester. 2 credits. Emphasis will be on coaching and officiating a variety of individual, dual, and team sports. Also, introduction to the basic principles of preventive care of athletic injuries. Prerequisite: Physical Education Majors Only.

*PHED 0412. HISTORY, ORGANIZATION, AND ADMINISTRATION OF PHYSICAL EDUCATION. 1st Semester. Lect. 3, 3 credits. Introduction to the historical background, development and contribution of physical education; as well as management and organizational principles including: finance, personnel, facilities and equipment, public relations, legal liability, and scheduling. Prerequisite: EDUC 0350; Physical Education Majors Only

*PHED 0417. METHODS OF TEACHING DANCE IN N-12. 1st Semester. Lect.1 Pract. 1, 2 credits. The teaching of educational and recreational dance forms. Subject matter materials building lessons, planning units, courses, dance curricula; observation and field experience at different grade levels: one hour per week. Prerequisite: PSYC 0274; PSYC 0377; PHED 0307; PHED 0310; Co-requisites PHED 0406; Physical Education Majors Only

*PHED 0419. ORIENTEERING 1st Semester. Lect. 3,Pract. 3, 2 credits. A cross-country type of activity in which the participant utilizes topographic map reading skills and follows directions by compass or other means to navigate over unfamiliar terrain. The skills of orienteering can be used to enjoy many outdoor pursuits, such as camping, backpacking, hiking, cross country skiing, fishing, and hunting or for competing in the sport of orienteering. Called the thinking sport, competitive orienteering requires great mental acuity, problem solving and decision making, along with cardio respiratory fitness. The student can cover distances from two to ten miles in navigating an orienteering course. With today's back-to-nature interests of people of all ages, orienteering skills can be valuable in improving environmental awareness and self-reliance in the out-of-doors. Prerequisites: Physical Education Majors Only

University Requirements

Tuskegee University is fully accredited by the Southern Association of Colleges and Schools, The National Council for Accreditation of Teacher Education and the Alabama State Department of Education to offer Teacher Education programs leading to Awarding of the Bachelor Arts Degree.

Alabama Quality Teaching Standards

To provide undergraduate professional physical education majors with an opportunity to develop teaching skills in physical education P-12. Also, to understand and become knowledgeable about teaching methodologies, techniques, and materials essential to effective teaching in physical education P–12.

I. To study, critically examine and understand the significant concepts of developing and improving teaching skills and effectiveness.
II. To study, critically examine and understand the ecology of physical education and creating and managing conditions for effective teaching.
III. To study, critically examine and understand the subject matter content, how it is organized and delivered through effective teaching strategies and formats.
IV. To study, critically examine and understanding the transition from student to professional teacher.
V. To study, how to model, teach and integrate multi-cultural awareness, acceptance, and appreciation and how to obtain and use information about cultural and community diversity as resources for instruction.
VI. To study and understand, how to teach students whose first language is not English.

VII. To provide undergraduate professional physical education majors with an opportunity to observe and participate in field laboratory experiences.

The Mission, Purpose and Rationale

The mission, purpose and rationale of the Department of Physical Education Teacher Education Professional Preparation Program is design and organized to prepare prospective teachers to select, implement, and evaluate diverse strategies and resources to provide early childhood, elementary, middle level and secondary students with the skills and knowledge appropriate for the individual teaching field. The Department of Physical Education embraces a wide spectrum of P-12 grades in its professional preparation program and curriculum.

PURPOSE, OBJECTIVES AND LEARNING OUTCOMES FOR THE DIVISION OF TEACHER EDUCATION PROFESSIONAL PREPARATION PROGRAM IN PHYSICAL EDUCATION

Young people all over the world are interested in physical education activities, games, sports, gymnastics swimming and dance. As professional educators, specifically teachers of physical education, we have both a vested interest and a fundamental responsibility to help teach and develop that interest, as well as the essential physical and motor fitness support components. Good teaching is the key element in the educational preparation of students. Teachers are important to the development of students as students themselves.

Teaching is truly an art and science and must be practiced and developed as such. Teacher education is an opportunity for persons who want to commit themselves to the vital and rewarding

task of being teachers. The field of professional education and more specifically the discipline of physical education is represented by some of the country's most outstanding experts in the education of the physical and education thru the physical. (Teachers: coaches, sport psychologist; exercise physiologist; sports medicine; kinesiology's; administrators; etc.)

The faculty of the Department of Physical Education would like to take this opportunity to welcome you to the teaching profession. If you have not taught before there are many new, exciting and challenging experiences awaiting you. Like any other profession teaching has its highs and lows, but if you are prepared, it can be mostly highs. If you have the teaching skills of wise educators, the administrative leadership of a business executive, and the counseling wisdom of a psychologist, you don't need this class. But if you don't then you can stay and find out what makes a teacher successful.

This three component unit model, of constructivist/reflective paradigm, schemata, and evaluative component, set in a professional knowledge base provides the framework for the preparation of beginning teachers, experienced teachers and school counselors in the College of Arts and Sciences at Tuskegee University. The unit graduate can be characterized as a practitioner who is a: "The Constructivist/Reflective Facilitator"

General Studies/University Core Requirements

The Division of Teacher Education ensure that all candidates have completed all General Studies and University Core Requirement courses and experiences. The General Studies and Core Requirements includes courses and/or experiences in the humanities, social sciences, mathematics and science.

Teaching Field

The teacher education unit shall ensure that teacher candidates attain academic competence in the content that they plan to teach. The teacher education unit meets appropriate Alabama State Department of Education knowledge and ability rules for specific teaching fields and NCATE-affiliated specialty organization guidelines.

Field Experiences

The internship in Class B is full-time in the schools for at least fifteen weeks, which should not be limited to one classroom or grade level, with experiences of the intern progressing to the full responsibility of the teachers for at least twenty days including at least 10 consecutive days. The P-12 program in physical education, the internship is divided between early childhood, elementary and secondary grades. The advanced internship requires at least 300 clock hours. The enhances the student's internship by maximizing the field experiences in the school(s) where the internship will be conducted.

Qualifications of Candidates

To ensure the qualifications of candidates, the physical education teacher education unit recruits, admits, and retains candidates who demonstrate potential for professional success in schools. A comprehensive system is employed to assess the qualifications of candidates seeking admission to the pre-professional preparation program.

Admission to college does not qualify a student for admission to teacher education. The university's division of education has clearly defined criteria for admitting students to teacher education which include the following: 1. A formal written application to admission to professional studies. 2. Minimum grade point average (GPA) of at least 2.5 overall, in professional studies, and in the teaching field. Satisfactory interviews designed to provide information on the applicant's personality, interest, and aptitudes consistent with the requirements for successful teaching. Experiences in the schools designed to assist the student in making a wise career choice, shall be required as a part of the process of selection and admission to teacher education.

A student who fails to meet the criteria describe above upon initial application may, consistent with university policy, take further work and repeat required examinations in an effort to meet admission standards. Each institution shall establish and enforce a policy which specifies when admission criteria must be met by the student before he or she is admitted to the program. This policy shall be submitted to the Teacher Education and Certification Office of the State Department of Education.

The following minimum requirements shall be met to qualify for the Class B certification: (a) Satisfactory completion of a state approved program with at least 2.50 GPA overall, in the teaching field, and in professional studies with no grades below a "C" in professional studies. Earn a passing score on a comprehensive written test required by the Alabama State Board of Education. Admission decisions shall be monitored by the unit to ensure that the admission criteria are applied.

Monitoring and Advising the Progress of Candidates

The teacher education unit systematically monitors and assess the progress of candidates and ensure that they receive appropriate academic and professional advisement from admission through completion of their professional education program. One person is authorized to represent the unit as the certification officer who certifies to the State Department of Education that an applicant for a certificate has successfully completed the approved program and/or recommendations for certification. The unit establishes, publish, and implement policies to guarantee the success of individuals who complete its approved program and are employed in their area of specialization. The unit shall provide remediation at no cost to such individuals who are recommended by the State Board of Education and within two years after program completion.

Curriculum

The professional studies component of each teacher education program includes an internship and be designed to meet the following rules. With regard to learning and motivation the prospective teacher must demonstrate:

Knowledge of:

Levels of readiness in learning and different learning styles.

Expected developmental progressions in the physical, social, emotional, aesthetic, and cognitive domains.

How to stimulate critical thinking and problem solving.

Language development and the role of language in learning.

How to help students become self-motivated.

How groups influence individuals and how individuals influence groups in a democratic society.

How to help individuals work productively and cooperatively with others.

Ability to:
Incorporate students' misconception, ideas, and experiences as a basis for planning instructional activities and use students' inquisitiveness to develop inquiry solving, and critical and creative thinking skills.

Use motivational strategies to promote student learning and increase student self-esteem.
With regard to student diversity, the prospective teacher must be prepared to demonstrate.

Knowledge of
Areas of exceptionality in learning and indicators of the need for special education services, as well as policies and procedures to be followed in referring students for special education services and/or to community agencies for assistance.

How students learning is influenced by individual experiences, talents, and prior learning including language and family/community values and conditions.

How to model, teach and integrate multicultural awareness, acceptance, and appreciation and how to obtain and use information about cultural and community diversity as resources for instruction.

How to teach students whose first language is not English.

Ability to:
Create a learning climate in which individual differences are respected.

Implement developmentally appropriate instruction for diverse learners.

Demonstrate a sensitivity to diversity, including cultural and gender differences and unique needs of exceptional students.

Access school, community, state, and other resources and referral services.

In regard to curriculum and instructional delivery, the prospective teacher shall demonstrate:

Knowledge of:
The state course(s) of study applicable to his/her teaching field(s) and how his/her teaching field(s) relates to other teaching fields.

How to plan instruction based on curriculum goals/objectives and students' experiences.
Advantages and limitations associated with various instruction strategies.

When and how to adjust plans based on student responses and other contingencies.

How to use a wide variety of school and community materials, and human and technological resources,

Encourage students' use of technology as a learning tool.

Ability to:
Establish curriculum goals and objectives that use the state courses of study applicable to his/her teaching field and textbooks currently used in the schools to plan and teach.

Plan learning opportunities appropriate for students learning styles including interdisciplinary instruction.

Use a variety of strategies such as cooperative learning, discussion, discovery, problem-based learning, and direct instruction in teaching.

Use a variety of current materials, technologies and media (e.g. audio-visual technology, computers, video tapes and disks, print and non-print resources.

Encourage students to recognize, question, and interpret ideas from a variety of perspectives.

Organize, use, and monitor a variety of student groupings for instruction.

Model appropriately verbal and written communication.

Use effective nonverbal communication and respond appropriately to nonverbal cues from students.

Adjust short-range and long-range plans based on the assessment of students' needs and performance.

Select teaching resources and curriculum materials appropriate for students with diverse backgrounds and reading skills.

Vary teaching roles, such as instructor, facilitator, coach and listener.

With regard to classroom management the prospective teacher should demonstrate.

Knowledge of:
Effective classroom and behavior management techniques and how to discipline students.

School emergency response, juvenile law, and nonviolent conflict resolution.

Ability to:
Encourage students to assume increasing responsibility for themselves and promote each others' learning.

Organize, allocate and manage the resources of time, space, and activities.

Communicate optimal expectations for each student.

Use appropriate classroom /behavior management and discipline techniques.

With regard to assessment, the prospective teacher shall demonstrate.

Knowledge of:
Characteristics, uses, advantages, and limitation of different types of assessments.

How to select, uses, advantages, and limitations of different types of assessments.

How to select, construct, and use a variety of appropriate assessment strategies.

Measurement-related issues such as validity, reliability, norms, bias, scoring concerns, and ethical uses of tests and test results.

How to evaluate one's performance as a teacher.

Ability to:
Design and use a variety of formal and informal assessment techniques to plan instruction modify teaching and measure and report student progress related to curriculum objectives.

Use classroom observation, student response, and research as sources to evaluate students learning and revise practice.

With regard to professional development and responsibilities, the prospective teacher shall demonstrate.

Knowledge of :
Current educational issues and trends.

Professional literature, research organizations, and other resources for continuing professional development.

Schools as organizations within the larger community and the operation of local schools, including basic knowledge of employment practices, finance, law and governance.

Laws related to students' and teachers, rights and responsibilities and the importance of complying with those laws.

The importance of keeping accurate record, especially those related to federal, state, and district policies and other records with legal implications.

Appropriate professional behavior.

Ability to:

Seek out best practices, professional literature, and collegial assistance to improve as a teacher and learner.

Communicate and collaborate effectively with colleagues, parents, guardians, and significant agency personnel.

Encourage the involvement of parents/guardians in educating their children.

Teach and conduct other professional activities in an ethical manner consistent with the requirements of law, rules, regulations, policies and procedures.

Use confidential student information in a professional manner.

Articulate a personal philosophy and its relationship to teaching practices.

MILITARY SCIENCE, AEROSPACE STUDIES AND NAVAL SCIENCE

Tuskegee University is authorized by the Department of Defense as a senior division Reserve Officers Training Corps (ROTC) unit. The Training Corps is organized into three parts—Army, Air Force and Navy. The Reserve Officers Training Corps is an integral part of the officer procurement programs for Reserve and Active forces to the two services. The Army, Air Force and Navy programs at Tuskegee University are composed of two programs -- a Basic and an Advanced program.

Tuskegee University's Basic ROTC program is totally voluntary. Qualified upper-class students may apply for and be accepted into the Advanced course. Provisions for selected junior college graduates, transferees, and special students, are also available to enter directly into the Advanced program. Students who are enrolled in the Advanced program (3rd and 4th ROTC year) are paid at the rate of $350-400 per month. Successful completion of the Advanced program leads to a commission as a second lieutenant in the Reserve or Active Armed Forces. Students with prior military training, should contact the Department of Military Science, at the beginning of their first year of enrollment at Tuskegee University.

Scholarships are available to selected students who are motivated toward military service and who are enrolled in ROTC programs. Four-year scholarships are awarded to qualified graduating high school seniors. Each scholarship pays tuition, laboratory expenses, an allowance of $250-400

per month, for the duration of the year. All scholarship students get free room and board from the university.

Military textbooks are furnished for first and second year ROTC students; third and fourth year ROTC students pay for books through the university bookstore.

MILITARY SCIENCE

The mission of the Tuskegee University Army ROTC Tiger Battalion is to commission the future leadership of the US Army and to motivate young people to be better citizens. Military Science has been a part of the Tuskegee University curriculum since February 1919, when a Junior Reserve Officer Training Corps (JROTC) unit was established with Captain Russell Smith as the first Professor of Military Science. Since progressing to a senior division unit in September 1941, graduates of Tuskegee have gone on to become General Officers. Achieving general officer rank in the Army is comparable to attaining a vice presidential position in a major corporation, the highest management levels of career government service, or the position of mayor or city manager of a typical municipality. The military accomplishments and contributions of Tuskegee graduates are rivaled by few other institutions. The Tuskegee graduate who successfully completes the Army ROTC program begins an Army career not only as a second lieutenant with a highly competitive starting salary, but with a much broader range of responsibility and authority than the graduate embarking on a civilian career. An Army ROTC graduate, four years out of college has earned an annual salary exceeding $43,000.

These Professional Military Education (PME) electives are taken from a wide range of courses offered by the various academic departments of the University. These courses are listed below.

Cadets must also demonstrate levels of proficiency, established by the Department of the Army, in the subject areas of higher mathematics, English, and reading through the Enhanced Skills Training Program. Students not meeting these standards when initially tested are given the opportunity to improve their skills in these areas, at no cost, through a computer based program.

The Military Science curriculum is divided into a Basic Course covering the first two years, and an Advanced Course covering work of the last two years.

Leadership Training Course/ The Basic Course is normally taken by the college student in his/her freshman and sophomore years. As an alternative, a student may fulfill Basic Course requirements by attending a four-week summer camp between his/her sophomore and junior years. The first two years prepare and qualify the student for the Advanced Course. The instruction in the freshman year is known as Military Science I, requires two hours per week (one classroom and one leadership lab period), and allows one credit hour per semester. The purpose of this instruction is to introduce the student to fundamental military knowledge: military customs and traditions; familiarization with basic weapons, equipment, and techniques; military organization and functions; and the techniques of leadership, management, and command. The best qualified men and women who successfully complete the Basic Course are selected for the Advanced Course that leads to an Army officer's commission.

THE ADVANCED COURSE/ LEADERSHIP DEVELOPMENT ASSESSMENT COURSE is designed to produce qualified officers for the Active Army, the United States Army Reserve, and the Army National Guard. Students selected for the Advanced Course must sign a contract, entailing an agreement to serve as a commissioned officer upon completion of the Army ROTC program. As members of the US Army Reserve, Advanced Course cadets receive a

monthly subsistence allowance of $350 (subject to change) for their last two years of college. Admission to the Advanced Course in on a best qualified basis. Advanced Course cadets must attend and successfully complete the five-week National Advanced Leadership Camp, usually during the summer between their junior and senior years. This camp is conducted at Fort Lewis, WA. Cadets receive full pay while attending the camp plus a travel allowance. Cadets having valid conflicts with their academic curricula may defer attendance at summer camp until after completion of their senior (MS IV) year. Upon successful completion of the Advanced Course and PME requirements, the student may be commissioned as a second lieutenant in one of the following branches: Adjutant General's Corps, Air Defense Artillery, Armor, Aviation, Corps of Engineers, Field Artillery, Finance Corps, Infantry, Military Intelligence, Chemical Corps, Military Police Corps, Ordnance, Quartermaster Corps, Signal Corps, and Transportation Corps.

Two-Year Program — A basic four-week summer training period after the sophomore or junior year replaces the Basic Course required of students in the traditional four year program. When a student with two years of college has been selected for the program and has successfully completed the Leaders Training Course, he/she is eligible for the ROTC Advanced Course in his junior and senior years. The Advanced Course, which leads to an officer's commission, is the same for students in either the four-year program or the two-year program. Additionally, there are two other options for students to qualify for the Advanced Course if attendance to the four week Leaders Training Course is not feasible due to Academic requirement, athletic camps, etc.

In addition to the pay provided during the Advanced Course and the Advanced Summer Training Camp, the student attending the Basic Summer Training Camp receives substantial pay and allowances during the period of attendance and a travel allowance.

Financial Assistance Programs -- The Army ROTC scholarship program offers financial assistance for selected students.

On campus scholarships may be awarded for either two or three years. The two and three-year scholarships are awarded to students in the "enrolled in ROTC: and the non-enrolled ROTC" categories. Three-year non-enrolled applicants must compress MS I and MS II training into their sophomore school year. Two-year scholarships are available to enrolled ROTC cadets who have completed the first two years of ROTC. Two-year, non-enrolled scholarship winners must attend the Leaders Training Camp in the summer preceding the final award of the scholarship.

Scholarship selection is on a best qualified basis, as selected by a ROTC selection board.

The financial assistance includes tuition, fees, laboratory expenses, a book allowance each semester and subsistence allowance, ranging from $250 – $400 per month, for the period that the scholarship is in effect. Students interested in an Army ROTC scholarship should contact the Professor of Military Science as soon as possible.

Distinguished Military Graduates: Any cadet rated in the top 10% of cadets across the nation will be designated as Distinguished Military Graduate.

Field Trips: Cadets are given the opportunity to expand their classroom knowledge by participating in field trips to local military installations. Trips will last from one to three days and will be one of two types: visits to Active Army organizations, to observe and learn the day-to-day operations of the Army; training exercises wherein the cadet gets hands-on experience with equipment and troop leading procedures.

Cadet Troop Leadership Training (CTLT): Each summer selected cadets are given the opportunity to work in Active Army units as officer trainees. Valuable insights into the role and responsibilities are gained by the students.

Cadets have numerous opportunities to volunteer for specialized training that includes Airborne School at Fort Benning, GA; Air Assault training at either Fort Rucker, AL or Fort Campbell, KY. This training is strictly voluntary and based on quotas allocated by the Department of the Army.

Graduate Education: Once a cadet completes the Army ROTC Program and is commissioned, he/she may request a delay from entry into active duty to complete professional Dental, Medical, etc. work. This advanced education is pursued at the individual's own expense.

Military Societies and Activities:

1. **The National Society of Pershing Rifles:** Founded in 1894 by General of the Army John J. Pershing, the Society is a military social fraternity committed to the highest ideals of excellence in leadership and manhood. Tuskegee University Chapter is Company P, 4th Regiment. This organization has traditionally formed the "crack" drill team of the ROTC program from its members and given performances at various locations throughout the South. The highlights of each school year for members of Pershing Rifles are the annual drill competition and attendance of members at the National Convention held in one of the country's large cities. Membership is open to male students enrolled who after one semester have attained a minimum 2.8 grade point average. Members can be recognized by the blue and silver shoulder cord (the distinctive badge of elite cadets) worn on the left shoulder of their ROTC uniform.
2. **The National Society of Pershing Angels (NSPA):** The sole purpose of the National Society of Pershing Angels (NSPA) is to instruct its members in citizenship, patriotism, and to provide such programs, whether military, social, or service as may be beneficial to its members, the Armed Services, or the university. Active membership is open to all females who shall be in good standing with the university. In addition, the candidate should possess outstanding leadership characteristics and conform to the highest ideals of the National Society. This criteria having been met, the females obtain active status in both the college level chartered unit and the National Society.
3. **Army ROTC Drill Team:** An organization of male and female students who learn the art of both standard and precision military drill techniques. It offers the student an excellent opportunity to refine his or her leadership skills. The Drill Team may participate at several intercollegiate matches held at institutions in the southeastern United States.
4. **Ranger Challenge Team:** The military varsity sport consisting of highly competitive teams who compete against 22 other teams at the battalion and brigade levels of competition. Participants receive the coveted "Ranger Challenge Tab."

PHYSICAL EDUCATION. Students enrolled in Army ROTC may satisfy the physical education requirement by completing at least two of the following courses: MILS 101, 102, 201, 202, 301, 302.

COURSE DESCRIPTIONS

MILS 0101. THE ROLE OF THE U.S. ARMY. 1st Semester. Lect. & Conf. 1 hr. weekly; Leadership Lab 1 hr. weekly, 1 credit. This course examines the need for military forces in society, and focuses on the U. S. Army's role in American defense strategy. Practical exercises

involving written and oral communications are used to discuss the participation of Black Americans in the U. S. Army. Some aspects of military leadership and benefits of a career in the U. S. Army are explored. Development of individual student study skills and communications abilities are stressed. Assertiveness training is available as self-study, supplemental instruction.

MILS 0102. THE DYNAMICS OF MILITARY LEADERSHIP. 2nd Semester. Lect. & Conf. 1 hr. weekly Leadership Lab 1 hr weekly, 1 credit. This course is concerned with a wide variety of factors that affect the development of an individual's style of leadership. Through an examination of society's values, and the impact of such values on the All Volunteer Force, students are exposed to some problems facing the Army officer. Practical exercises and seminars conducted by active military leaders from off campus help a student understand the responsibilities of military leaders. A basic understanding of first aid is presented to provide the student with a basic military skill that has nonmilitary application. Oral communications are stressed through impromptu speeches and open discussions. Military customs, drill and ceremony are presented in the leadership laboratory.

MILS 0201. LAND NAVIGATION AND STUDENT PRESENTATIONS. 1st Semester. Lect. & Conf. 2 hrs. Weekly, Leadership Lab 1 hr. weekly, 2 credits. Basic principles of land navigation, to include how to read a map and identify and locate terrain features are learned through practical exercise. An orientation field trip in applying map reading skills learned in the classroom is also presented. Development of oral communication skills through short student presentations is taught. Adequately preparing the student to successfully meet the higher challenges of the Advanced Course program is emphasized. In the leadership lab, students are taught methods of conducting training and are given practical experience in training management.

MILS 0202. THE ROLE AND RESPONSIBILITIES OF THE U. S. ARMY OFFICER. 2nd Semester. Lect. 2, Leadership Lab 1, 2 credits. This course develops the student's understanding of the specific duties and responsibilities required of an Army officer. Principles of small unit tactics and land navigation are learned through practical exercises. Aspects of the professional relationship between an officer and an enlisted member are explored. The student is exposed to the eligibility requirements and conditions for enrollment in the ROTC Advanced program. Benefits of a career as a U. S. Army officer are discussed. Management of training is stressed in leadership laboratory.

MILS 0203. ROTC BASIC CAMP. Summer. Lect. and practical exercise, 4 credits. This is a six week course only offered during the summer. The course is for students desiring to enter Army ROTC as a junior. The course will teach basic military skills in map reading, marksmanship, drill and ceremony, first aid, and tactical training.

MILS 0301. PRINCIPLES OF LEADERSHIP AND MANAGEMENT II. 1st Semester. Lect. 3, Leadership Lab 1, 3 credits. This course provides the student with skills that form the foundation for his future role as an Army officer. Military Skills that concern Army equipment, first aid and land navigation are stressed. Tactics used at the squad and platoon levels of the Army's combat organization are examined. Methods of presenting a military briefing are learned through practical exercises that focus on factors affecting the effectiveness and morale of a unit. Principles for presenting military instruction are presented. In leadership laboratory the student develops an

understanding of teamwork, and he practices skills required for attendance at the ROTC Advanced Camp. Supplemental instruction with emphasis on practical experience is available to the student for all phases of instruction. Prerequisites: Completion of the Basic Course or equivalent.

MILS 0302. PRINCIPLES OF LEADERSHIP AND MANAGEMENT II. 2nd Semester. Lect. 3, Leadership Lab 1, 3 credits. This course is principally concerned with refining those skills needed to conduct combat operations at the platoon level. Troop leading procedures are used for all phases of instruction. Detailed information on the conduct of tactical activities is presented. Characteristics of various weapons used in combat are examined. Procurement and use of intelligence information at battlefield level are discussed. Oral and written communications are stressed in briefings, instruction and reports by the student. Each branch of service in the U. S. Army is discussed in detail. Leadership laboratory instruction is concerned with practical application of classroom instruction. Students are placed in leadership positions under conditions requiring them to exercise decision making skills. A weekend field training exercise highlights the supplemental instruction wherein all phases of the MILS III course are practiced. Prerequisite: Satisfactory completion of MILS 0301.

MILS 0303. ROTC ADVANCE CAMP. Summer. 3 credits. This course is mandatory for all contracted juniors. This is a leadership course to evaluate leadership potential. Successful completion of MILS 303 is required before applying for commissioning as a second lieutenant. Instruction will only be offered during the summer sessions. Students will be evaluated in leadership skills from individual through platoon level collective tasks. This course is six weeks (seven days per week) in duration and is currently taught at Ft. Lewis, Washington.

MILS 0401. U.S. ARMY MANAGEMENT PRINCIPLES. 1st Semester. Lect 3, Leadership Lab 1, 3 credits. This course is oriented to the duties performed by a junior officer in the United States Army. Through oral presentations, written reports and practical exercises, the student develops skills that he will use in managing units in the United States Army. Situations both in and out of the classroom are used to give the student experience in counseling subordinates on job performance and personal problems. The military justice system is examined in detail, with a mock trial used to give the student a better understanding of his responsibilities under military law. As a senior, the student will be a cadet officer and be responsible for managing some aspect of the cadet corps. Particular emphasis is placed on the preparation for, and conduct of training. Prerequisite: Satisfactory completion of Military Science III.

MILS 0402. THE MILITARY PROFESSION. 2nd Semester. Lect. 3, Leadership Lab 1, 3 credits. This course provides the student with detailed knowledge of United States Army organizations and how the different types of units contribute to the Army's mission. A twelve hour seminar examines the ethical and professional aspects of being a military officer, along with some moral dimensions of modern warfare. Forms of Army correspondence are presented, with the student given practical experience in completing various types of reports that are common to duties of a second lieutenant. Throughout the course the student is given the opportunity to exercise his communications skills. In the leadership laboratory and in extra-curricular activities the student is able to sharpen his leadership skills. Prerequisites: Satisfactory completion of MILS 0401.

MILS 0403. SPECIAL PROJECTS. 1st and 2nd Semesters, Summer. 3 credits. Research and lecture. This course is for Army ROTC students, who desire to further their knowledge, in military subjects that range from current world situations, to the use of the elements, of National Power. The course consists of discussion, research, and independent study. Enrollment must be approved by the PMS and is limited to 5 students per semester or summer session.

MILS 0501. CONTEMPORARY ARMY ISSUES. 1st and 2nd Semesters. Lect. 1, Leadership Lab 1, 1 credit. This course provides the Army ROTC Cadet on scholarship extension and selected "Continuing Students" who has completed all other Military Science course's refresher instructions in current issues of Military Doctrine. The student completes a book review on selected work from the Army Professional Reading list and completes reviews on articles from current military journals. Prerequisites: Satisfactory completion of MILS 0401 and 0402.

MILS 0502. CONTINUING ARMY STUDIES. 2nd Semester, 1 credit. This course is designed for MS V and completion cadets working to finish their degree. This course will keep students abreast of changes within the Army, ensure physical and mental fitness, ensures cadet data base is accurate, and ensure commissioning requirements are met timely. Students will attend one class and lab weekly, and physical training two times a week.

AEROSPACE STUDIES

The Air Force Reserve Officer Training Corps (ROTC) is the oldest major continuous source of officers for the United States Air Force. Its mission is to develop quality leaders for the Air Force. The Air Force Senior ROTC Program is designed to recruit, educate and commission officer candidates through college campus programs based on Air Force requirements. Units are located at 144 college and university campuses throughout the United States and Puerto Rico. Students from schools near Air Force ROTC host institutions can attend classes through 1025 separate cross-town enrollment programs or consortium agreements.

Air Force ROTC is one of the three main long-range programs designed to provide the Air Force with the bulk of its professional officer corps. The others are the Air Force Academy and the Officer Training School. The Air Force is depending on high quality Air Force ROTC men and women for much of its future leadership.

History

Air Force ROTC was established in 1946 at 78 colleges and universities including Tuskegee University. The ROTC program continues the previously established program of training military leaders. During World War II, the Army Air Corps contracted with Tuskegee University to conduct primary Pilot Training for Black Officers.

This was the only training site in the nation where Blacks could train to be military pilots. The 992 black military aviators trained at Tuskegee’s training complex were organized into four squadrons designated the 332nd Fighter Group. The Group became know as the Tuskegee Airmen. The Tuskegee Airmen distinguished themselves by flying 1,578 missions and 15,533 combat sorties; destroying 112 German aircraft in the air and another 150 on the ground. They also destroyed 950 railcars, trucks and other motor vehicles and even sunk an enemy destroyer by P-47 machine gun fire. Most notably, they flew over 200 bomber escort missions and had a nearly perfect record of never losing a bomber aircraft to enemy fighters. The outstanding record of

black airmen in World War II was accomplished by men whose names will forever live in hallowed memory. Each one accepted the challenge, proudly displayed his skill and determination while suppressing internal rage from humiliation and indignation caused by frequent experiences of racism and bigotry, at home and overseas. These airmen fought two wars - one against a military force overseas and the other against racism at home and abroad.

These brave African-American airmen earned 150 Distinguished Flying Crosses, Legions of Merit, Silver Stars, Purple Hearts, the Croix de Guerre, and The Red Star of WWII and achieved greater accomplishments. Most notable on 29 March 2007, approximately 300 Tuskegee Airmen (or their widows) received the Congressional Gold Medal at a ceremony in the U.S. Capitol rotunda. The medal is currently on display at the Smithsonian Institution.

Although they did not receive the recognition they deserved in terms of promotion, many went on to live very distinguished civilian lives as doctors, lawyers, politicians, and educators. The late Benjamin O. Davis, Jr. retired in 1970 as a Lieutenant General. President William J. Clinton promoted him to four-star General on January 14, 1999.

This AFROTC detachment has continued to be a major source of minority leadership as evidenced by the achievements of some of its graduates. Tuskegee University has produced more African American General Officers than any other institution of higher learning. Most notably, the late General Daniel "Chappie" James, United States Air Force was our nations' first African American four-star General.

ROTC Program

The Air Force Reserve Officer Training Corps (ROTC) is an educational program designed to provide college students an opportunity to become commissioned officers in the United States Air Force while completing their college degree programs. There are several routes to become an Air Force Officer. Air Force ROTC offers three routes to an Air Force commission, which is either through the Air Force ROTC Four-Year, Two-Year, or One-Year Programs.

Four-Year Program

The General Military Course (GMC is the first half of the Four-Year Program) is taken during the freshman and sophomore years. This program allows students to "try out" Air Force ROTC for one to four semesters without incurring an obligation and let students learn about the Air Force and the historical development of air power.

Entrance in to the last half of the Four-Year Program, called the Professional Officer Course (POC), is highly competitive. These junior and senior level courses cover leadership, management theory skills and national defense policy. Students selected for this program must: pass the Air Force Physical Fitness Assessment; complete an Air Force medical examination; meet minimum GPA requirements; meet U.S. citizenship requirements; and not exceed more than 30 years of age at the time of commissioning. After meeting those requirements, applicants must attend a four-week summer Field Training Encampment course. After successfully completing the summer Field Training course and passing an Air Force Officer Qualifying Test (AFOQT), applicants may then be enrolled in the Professional Officer Course (POC) during their last two-years of college. Students will be commissioned as Second Lieutenants in the United States Air Force after successfully attaining their degrees.

Two-Year Program

This program, also called the Professional Officer Course (POC), is open to qualified juniors, especially those majoring in selected scientific and technical areas, such as electrical and computer science, nursing, any critical foreign languages. Students desiring entry into the two-year program must have two academic years remaining in full-time student status. Because entrance into the POC program is competitive, it is important to apply by the second semester of the sophomore year of college. Students applying to enter the Two-Year Program must pass the same requirements as in the Four-Year Program. All other benefits and obligations are the same as under the four-year program.

Air Force ROTC Scholarships

Air Force ROTC offers four-year scholarships (College Scholarship Program) on a competitive basis to high school seniors or graduates who want to major in selected scientific and technical areas such as engineering, mathematics, and computer science, as well as some non-technical areas. The deadline for submitting the complete scholarship package is the first week in December of the year prior to the college freshman year.

Scholarships are also available for students already enrolled in college (In-College Scholarship Program) for 3.5, 3.0, and 2.5 years to college students in the scientific, technical, and non-technical areas. Application inquiries and submissions can be made to the Professor of Aerospace Studies at the Air Force ROTC detachment, located at the General Daniel "Chappie" James Center, during the freshman and sophomore levels of college. Air Force ROTC scholarships pay full college tuition and most laboratory, textbook, and incidental fees. In addition, all scholarship recipients receive a non-taxable monthly stipend.

Qualifications for Air Force ROTC Scholarships

Students applying for In-College AFROTC scholarships must have a minimum grade point average of 2.5 the semester prior to scholarship activation, successfully complete an Air Force medical examination, and successfully pass a physical fitness test. In addition, the student must be enrolled and in good academic standing in the applicable Aerospace Studies and Leadership Laboratory courses.

Registration for Air Force ROTC Courses

Air Force ROTC courses are listed in the Tuskegee University Undergraduate Programs bulletin, and the Tuskegee University Schedule of Courses. Students who wish to enroll in General Military Courses may do so just as they would for any other campus course.

As an Air Force ROTC cadet, students spend one class period each in a Leadership Laboratory putting into practice the leadership skills and management theory acquired during class. Leadership Laboratory is a cadet-centered program designed to improve the cadets' leadership skills as Air force officers.

Qualifications for Aviation Programs

Air Force ROTC cadets, both men and women, may compete to become pilots and navigators. All pilots and navigator candidates must successfully pass the Air Force Officer Qualifying Test (AFOQT), and be medically qualified, in order to be officially selected as a pilot/navigator candidate by a board of Air Force officers.

Air Force pilot training is conducted at several bases in the United States. These training courses are available to commissioned men and women who qualify for duty as rated pilots.

Officers must meet physical qualifications and apply in sufficient time to enter Undergraduate Flying Training (UFT) prior to reaching age 30. Therefore, AFROTC pilot candidates must be scheduled for commissioning before reaching 29 years of age. This will allow AFPC the time necessary to schedule a selected pilot or navigator cadet into an appropriate training class.

Air Force navigator training is available to qualified commissioned officers. Officers must meet physical qualifications and apply in sufficient time to enter UFT prior to reaching age 30. Therefore, AFROTC navigator candidates must be scheduled for commissioning before reaching 29 years of age. This will allow AFPC the time necessary to schedule a selected pilot or navigator cadet into an appropriate training class.

Medical Programs

The Air Force offers direct appointments to graduates of medical, dental, and nursing schools, as well as to members of other professional medical services.

Air Force ROTC Pre-Health Professions Program: This program encourages students to earn commissioning through Air Force ROTC, and subsequent special qualifications for scholarship under the Armed Forces Health Professions Scholarship Program in a selected health professional school, or in the Uniform Services University of Health Sciences. College students are eligible to compete in the Pre-Health Professions Program, which includes scholarships. Program members are commissioned as second lieutenants in the Air Force upon completion of Air Force ROTC and baccalaureate degree requirements. Participants are guaranteed an Armed Forces Health Professions Scholarship to attend medical school, provided they gain acceptance to a medical school prior to their commissioning/graduation date.

Graduate Educational Opportunities

Once cadets complete Air Force ROTC and are commissioned, they may request a delay from entry into active duty to complete graduate work. This advanced education is pursued at the individual's own expense. Air Force ROTC graduates may also apply for graduate education at the Air Force's expense under the Air University's Air Force Institute of Technology (AFIT) program. Those selected for AFIT receive all pay and allowances of a second lieutenant and have their tuition and expenses paid for by the Air Force. Once on active duty, the Air Force Officer has additional opportunities for graduate and advance professional education.

Air Force Societies and Activities:

Aerospace Field Training Encampment Course: Four week Field Training Encampment courses are conducted during the summer at Maxwell Air Force Base, Alabama. These courses include leadership training and evaluation, officership training, survival training, physical training, human relations instruction, small arms familiarization, first aid and other supplemental training. Cadets are organized into units modeled after active duty Air Force organizations (flight, squadrons, groups, and wings). Each cadet receives several opportunities to serve in leadership positions within these units. Discipline is maintained with emphasis on high standards for military appearance and personal grooming, orderliness and neatness of living areas, military customs and courtesies, and drill and ceremonies.

Arnold Air Society: This Honorary Professional Organization was named in honor of General H. H. (Hap) Arnold, Commanding General of the Army Air Force in World War II. The Arnold Air Society is an honorary professional organization of Air Force cadets. Its units provide a variety of services to their institutions as they promote the interests and ideas of the U.S. Air

Force. The Society also enables its members to prepare themselves as future Air Force leaders. Basis for membership is the cadet's desire to promote traditions and aspiration of the Air Force and to foster citizenship. Tuskegee University's Arnold Air Society Squadron takes part in university, civic, charitable, and service activities in keeping with its dedication to public service.

Silver Wings: The coed auxiliary of the Arnold Air Society. They participate in an active program of professional service projects of their own, as well as serving as hostesses at university, civic and AFROTC functions. Thus, they become better informed about the contributions of the Air Force to our national security, while assisting their host Arnold Air Squadrons. Competition for membership in the organization is keen. Selection criteria include the candidate's interest, sociability, demeanor and academic achievements at the university.

Air Force ROTC Drill Team: An organization of cadets who learn that art of standard and "creative" military drill techniques. The Air Force ROTC Drill Team offers cadets an excellent opportunity to refine their leadership skills.

Pay and other Benefits:

Air Force ROTC cadets are entitled to many of the benefits that are offered to active duty Air Force personnel. Social and other extracurricular activities, along with the leadership and academic training are intrinsic to Air Force ROTC. There are also more tangible benefits:

- All non-scholarship status (contract) ROTC cadets receive a non-taxable monthly stipend.
- Scholarship cadets receive a non-taxable monthly stipend. They also receive paid tuition, laboratory fees, and incidental fees and books. Tuskegee University also offers free room and board for all ROTC scholarship recipients.
- All uniforms and textbooks are provided by the Air Force while on campus and at the summer Field Training Encampment courses.
- Cadets who have completed the program, but are not yet on active duty may purchase uniforms and accessories from the detachment at considerable savings.
- Notable cadet achievements are recognized by a variety of awards.

Courses of Instruction

PHYSICAL EDUCATION FOR AFROTC STUDENTS: Students enrolled in AFROTC may satisfy their Physical Education requirement by completing at least two of the following courses: AERO 151L, 152L, 251L, 252L.

AERO 0151. THE AIR FORCE TODAY. 1st Semester. Lect.1, Lab 1, 2 credits. This course is a study of professionalism and officership as they apply to the military. It also includes an introduction to communication skills.

AERO 0151L. AEROSPACE STUDIES LABORATORY. 1st Semester. Lect.1, Lab 1, 0 credits. (PASS/FAIL). LLAB is designed as an informative experience. This course provides leader-manager training and experience for all AFTOTC cadets in a supervised environment. The cadet organization staged and operated by cadets, under the supervision of the AFTOTC staff (cadre), plans and conducts training in drill and ceremonies, leadership, and personnel management. Corequisite: AERO 0151.

AERO 0152. THE AIR FORCE TODAY. 2nd Semester. Lect.1, Lab 1, 2 credits. A study of the organizational structure of the Air Force, mission of selected military organizations, and selected topics that contribute to an understanding of the Air Force today.

AERO 0152L. AEROSPACE STUDIES LABORATORY. 2nd Semester. Lab 1, 0 credits. (PASS/FAIL). LLAB is designed as an informative experience. This course provides leader-manager training and experience for all AFTOTC cadets in a supervised environment. The cadet organization staged and operated by cadets, under the supervision of the AFTOTC staff (cadre), plans and conducts training in drill and ceremonies, leadership, and personnel management. Corequisite: AERO 0152.

AERO 0251. DEVELOPMENT OF AIR POWER. 1st Semester. Lect. 1 Lab 1, 2 credits. This course examines the development of air power over the past sixty years. It traces the development of various ideas of employment of air power and focuses upon factors that have prompted research and technological change. Also included is an assessment of communications skills and introductory leadership.

AERO 0251L. AEROSPACE STUDIES LABORATORY. 1st Semester. Lab 1, 0 credits. (PASS/FAIL). LLAB is designed as an informative experience. This course provides leader-manager training and experience for all AFTOTC cadets in a supervised environment. The cadet organization staged and operated by cadets, under the supervision of the AFTOTC staff (cadre), plans and conducts training in drill and ceremonies, leadership, and personnel management. All 200 level Laboratories prepares cadets to be mentally and physically ready for Field Training. Corequisite: AERO 0251.

AERO 0252. DEVELOPMENT OF AIR POWER. 2nd Semester. Lect. 1 Lab 1, 2 credits. This course presents an historical review of the technical stride in air-power employment, in military and non-military operation, and in support of national objectives. This course also surveys the evolution of air power concepts and doctrines, from the Communication exercises and skills that are practiced.

AERO 0252L. AEROSPACE STUDIES LABORATORY. 2nd Semester. Lab1, 0 credits. (PASS/FAIL). LLAB is designed as an informative experience. This course provides leader-manager training and experience for all AFTOTC cadets in a supervised environment. The cadet organization staged and operated by cadets, under the supervision of the AFTOTC staff (cadre), plans and conducts training in drill and ceremonies, leadership, and personnel management. All 200 level Laboratories prepares cadets to be mentally and physically ready for Field Training. Corequisite: AERO 0252.

AERO 0351. AIR FORCE LEADERSHIP AND MANAGEMENT. 1st Semester. Lect 3, Lab 1, 3 credits. This course is a study of the ethical characteristics and responsibilities forming the foundation of military professionalism. Leadership theory, human relations, personnel policies and concepts of discipline are examined. Communications skills and problem solving techniques are emphasized.

AERO 0351L. AEROSPACE STUDIES LABORATORY. 2nd Semester. Lab1, 0 credits. (PASS/FAIL). LLAB is designed as an informative experience. This course provides the continued opportunity to hone their leadership skills and prepare them for active duty. The cadet organization staged and operated by cadets, under the supervision of the AFTOTC staff (cadre), plans and conducts training in drill and ceremonies, leadership, and personnel management. . Corequisite: AERO 0351.

AERO 0352. AIR FORCE LEADERSHIP AND MANAGEMENT. 2nd Semester. Lect 3, Lab 1, 3 credits. This course is a study of management including the functions of the military executive and quality management applications. Management practices and controls are evaluated with mission requirements and achievements. Emphasis is placed on critical and creative thinking.

AERO 0352L. AEROSPACE STUDIES LABORATORY. 2nd Semester. Lab1, 0 credits. (PASS/FAIL). LLAB is designed as an informative experience. This course provides the continued opportunity to hone their leadership skills and prepare them for active duty. The cadet organization staged and operated by cadets, under the supervision of the AFTOTC staff (cadre), plans and conducts training in drill and ceremonies, leadership, and personnel management. Corequisite: AERO 0352.

AERO 0451. NATIONAL SECURITY AFFAIRS. 1st Semester. Lect 3, Lab 1, 3 credits. This course examines the need for national security, analyzes the evolution and formation of the American defense doctrine; investigates the types of security, surveys alliances, and regional studies. Communication skills are broadened and refined.

AERO 0451L. AEROSPACE STUDIES LABORATORY. 1st Semester. Lab1, 0 credits. (PASS/FAIL). LLAB is designed as an informative experience. This course provides the continued opportunity to hone their leadership skills and prepare them for active duty. The cadet organization staged and operated by cadets, under the supervision of the AFTOTC staff (cadre), plans and conducts training in drill and ceremonies, leadership, and personnel management. Corequisite: AERO 0451.

AERO 0452. NATIONAL SECURITY AFFAIRS. 2nd Semester. Lect 3, Lab 1, 3 credits. This course focuses on the military as a profession, officership, the military justice system, and current issues affecting military professionalism. Also, continued emphasis is given to the refinement of communicative skills.

AERO 0452L. AEROSPACE STUDIES LABORATORY. 2nd Semester. Lab1, 0 credits. (PASS/FAIL). LLAB is designed as an informative experience. This course provides the continued opportunity to hone their leadership skills and prepare them for active duty. The cadet organization staged and operated by cadets, under the supervision of the AFTOTC staff (cadre), plans and conducts training in drill and ceremonies, leadership, and personnel management. Corequisite: AERO 0452.

AERO 0455L. AEROSPACE STUDIES LABORATORY. 1st and 2nd Semesters. Lect. 1 Lab 1, 0 credits. (PASS/FAIL). This course focuses on independent cadet study/work projects designed to yield professional benefits to both the individual and the Cadet Corps. The primary objective is

for completed cadets to continue to upgrade the knowledge and skills required to be an outstanding Air Force officer. AERO 0455 provide framework, guidance, and evaluation for independent learning, while simultaneously providing a productive, challenging, and rewarding experience. Prerequisite: Satisfactory completion of AERO 0451L and 0452L

NAVAL SCIENCE

The mission of the Naval ROTC is to develop NROTC students mentally, morally, and physically and to imbue them with the highest ideals of duty, honor, and loyalty; to commission college graduates as naval officers who possess a basic professional background, are motivated toward careers in the naval service, and have a potential for future development in mind and character so as to assume the highest responsibilities of command, citizenship, and government. All NROTC Programs are open to qualified men and women. All Naval Science courses, basic and advanced, are open to all Tuskegee students regardless of affiliation with the NROTC Program.

To be eligible for enrollment as a midshipman, an applicant must be a United States citizen; have no moral obligations or personal convictions that will prevent bearing of arms, and supporting and defending the Constitution of the United States against all enemies, foreign and domestic; meet age requirements of at least 17 years on or before 1 September of the year of enrollment and less than 27 years on 30 June of the year an applicant expects to graduate, complete all NROTC training requirements, and be commissioned; meet physical requirements for the NROTC Program; and be accepted for admission as a full-time student at Tuskegee University. Applicants with prior or current active duty in the U.S. Armed Forces may be granted age waivers equal to the number of months served, not to exceed 36 months. Those granted the maximum age waiver must be less than 30 years of age on 30 June of the year they expect to graduate.

Naval ROTC Programs

Navy Minority Serving Institution Scholarship Reservation (MSISR) - The MSISR scholarship is open to high school students of any race or ethnicity with academic potential who have yet to demonstrate performance in a college environment and to college students who have completed 29 or fewer credit hours with a minimum cumulative GPA of 2.75 and no grade below a "C" in any course attempted. Apply between January 1st and May 31st at the Tuskegee University Department of Naval science.

USMC Frederick C. Branch Scholarship – This scholarship is awarded to high school seniors or college freshmen and sophomores who seek to earn a commission in the United States Marine Corps while attending Tuskegee University. In general, students must have performed well academically in High School or, if in college, completed at least one semester of course work with a minimum 2.0 GPA and received a grade no lower than "C" in all attempted courses. Additionally, you must achieve a minimum SAT score of 1000 (combined math and critical reading *only*) or 22 combined on the ACT. This requirement can not be waived. Apply between January 1st and May 31st at the Tuskegee University Department of Naval Science.

Four-Year NROTC Navy-Marine Corps Scholarship – Entrance into the Navy-Marine Corps Scholarship Program is via nationwide competition. Applicants typically apply during their senior year of high school. Qualifications for enrollment, applications, and information bulletins are available at high schools, colleges, recruiting stations, and the Tuskegee NROTC Unit. The Department of the Navy pays tuition, fees, $375 per semester for textbooks, and provides a monthly stipend. Freshmen on scholarship receive $250, sophomores $300, juniors $350, and seniors $400 per month. Active duty pay for summer training is approximately $560 per month with living quarters and meals provided. Although the program emphasizes engineering and science majors, students may enroll in any Tuskegee University major leading to a baccalaureate degree. In addition to the requirements of their major, NROTC students must complete 24 semester hours of Naval Science courses, a national security policy course and a world cultures course, regardless of the major chosen (contact the Naval Science Department for a list of qualifying courses). Additionally, Navy Option scholarship students must complete two calculus and two calculus-based physics courses. Summer activities include two at-sea training cruises and one summer period of career orientation lasting for about four weeks. Marine Option students participate in a six-week orientation course at Quantico, VA in lieu of the second at sea training cruise. Scholarship students may resign without obligation anytime prior to the beginning of their second year in the program. Successful completion of the NROTC program leads to a commission as Ensign, U.S. Navy, or Second Lieutenant, U.S. Marine Corps.

Two-Year NROTC Navy-Marine Scholarship - Selections for this program are made on a national basis from nominations submitted by NROTC units or officer recruiters from around the country. Selected applicants attend the Naval Science Institute (NSI) in Newport, RI for six weeks during the summer prior to their junior year. Successful NSI completion qualifies students for enrollment in the advanced course (junior year) of the NROTC Program. The two-year scholarship covers the final two years of college; provides tuition, fees, $375 per semester for textbooks, and subsistence stipend for a maximum of 20 months. The program is open to college students who have completed their sophomore year or third year in a five-year curriculum. The deadline for application is 15 March of the applicant's sophomore year. Upon graduation students are commissioned as Ensigns, U.S. Navy, or Second Lieutenants, U.S. Marine Corps.

College Program - The College Program offers a two- or four-year program. Applicants are selected from students already attending or accepted by colleges with NROTC programs. The program pays for uniforms and instructional fees for Naval Science courses. College Program students selected for advanced standing prior to their junior year receive a stipend for a maximum of 20 months. Advanced standing is only available starting the junior year of college. Stipend per academic month is $350 junior year and $400 senior year. College Program students will complete Naval Science and other university courses, a few specific university courses, and attend one summer training session, normally at sea for Navy Option midshipmen and Quantico, VA, for Marine Option midshipmen. Four-year applicants apply to the Tuskegee NROTC. Two-year applicants apply before the spring of their sophomore year. When accepted, two-year applicants will attend the six-and-a-half week Naval Science Institute program in Newport, RI, during the summer between their sophomore and junior years. Upon graduation, two- and four-year College Program midshipmen may be commissioned Ensigns, U.S. Navy or Second Lieutenants, U.S. Marine Corps.

Navy Nurse Corps NROTC Scholarship - The Navy pays tuition, fees, $375 per semester for textbooks, all equipment, and uniform items within the BSN degree curriculum. Subsistence pay and active duty pay for summer training is equivalent to the pay provided by the Navy-Marine Corps Scholarship Programs. Students must major in a nursing program leading to a BSN degree. Naval Science course requirements for Nurse Option students consist of Introduction to Naval Science; Seapower and Maritime Affairs; Leadership and Management; and Leadership and Ethics. Summer activities include one at-sea training cruise and one shore-based hospital training period. Nurse Corps NROTC scholarship eligibility and selection procedures are the same as regular four-year NROTC Scholarship Program requirements. Upon graduation, Nurse Corps NROTC Scholarship midshipmen are commissioned as Ensigns, U.S. Navy Nurse Corps.

Tweeddale Scholarship - The Professor of Naval Science (PNS) is allowed to award two Tweeddale Scholarships each year. The program focuses on students majoring in specific technical fields, i.e., Engineering, Mathematics, Computer Science, Chemistry, or Physics. A strong math/science background in high school and a "B" or better in calculus, if completed, is desired. Candidates will be interviewed by the PNS and must comply with Navy standards regarding leadership potential and military/physical fitness. As part of the application process, the candidate will submit a revised degree plan for review by the PNS. The degree plan must be verified by the student's faculty advisor and must demonstrate that the student will be able to complete all Naval Science requirements and still graduate on time with his/her assigned class year group. Candidates must have completed at least one but no more than four academic terms with a cumulative GPA above peer mean or 3.0, whichever is higher. Transcripts must reflect a grade of "C" or better in all courses attempted. Candidates must have completed one academic term of college level math or science. Upon acceptance, the student is required to complete NAVS 1010 as soon as possible. The Navy pays tuition, fees, $375 per semester for textbooks, and provides a monthly stipend the same as the four-year scholarship.

Naval Service Training Command (NSTC) Officer Development (OD) Controlled Scholarships - NSTC OD Controlled Scholarships, including Nurse Corps option, are awarded annually by NSTC OD. The Navy pays tuition, fees, $375 per semester for textbooks, and provides a monthly stipend the same as the four-year scholarship. This program provides an avenue for the PNS to nominate College Program midshipmen who have demonstrated solid academic and professional performance and indicate potential for program completion and future commissioned service. The NSTC OD Controlled Scholarship Board meets twice per year to select scholarship nominees. NROTC College Program students must have received academic and aptitude marks in Naval Science for a period of at least one academic term prior to nomination. Students enrolled in Naval Science courses but not members of the NROTC who have received academic marks for a period of at least one academic term, may be nominated, provided they enroll in the NROTC College Program prior to their nomination. Nominees should have a cumulative grade point average at least equal to the average of all students in the same college or degree program. However, all nominees with a cumulative GPA equal to or above 2.5 will be considered. Uniforms, Naval Science textbooks, and equipment necessary for the NROTC Program are furnished in all programs.

Active Duty Service Requirements Upon Graduation

Active duty service requirements for scholarship midshipmen vary depending on the warfare area they enter. The basic requirement is eight years, five of which must be on active duty. The remaining three years may be completed on active duty or in the reserves. The following warfare communities have additional requirements: Naval Aviator (Pilot) - 8 years active duty after qualification as a Naval Aviator Naval Flight Officer - 6 years active duty after qualification as a Naval Flight Officer USMC Pilot - 8 years active duty after qualification.

Curriculum

The Naval Science curriculum consists of three class hours per week for all NROTC students for eight semesters. All NROTC students attend the Naval Science laboratory for two class periods per week. Naval Science subjects are listed in this bulletin. Only 300/400 series subjects are applicable for the Two-Year Programs. Naval Science course hours are considered as part of the normal semester load. Twelve hours of upper level (300/400) Naval Science classes may be used as electives in any major.

Naval Science Minor

The Department of Naval Science offers a minor under the following conditions. A student need not be a member of the NROTC Unit. Fifteen semester hours of Naval Science are required, nine of which must be courses numbered 300 or above. The following courses qualify: NAVS 0101 NAVS 0102 NAVS 0201 NAVS 0206 NAVS 0303 NAVS 0305 NAVS 0306 NAVS 0402 NAVS 0403 NAVS 0405

Course Descriptions

Freshman Year

Fall:

NAVS 0101 INTRODUCTION TO NAVAL SCIENCE (3 credit hours). LEC. 3. Basic areas of Naval Science including uniforms and insignia, military courtesy, discipline, warfare components organizational structure, and supporting elements of the U.S. Navy and U.S. Marine Corps.

NAVS 0101L NAVAL SCIENCE LABORATORY (0 credit hours). LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

Spring:

NAVS 0102 SEAPOWER AND MARITIME AFFAIRS (3 credit hours). LEC. 3. Introduction to broad principles, concepts and elements of naval history, seapower, and maritime affairs from past to present.

NAVS 0102L NAVAL SCIENCE LABORATORY (0 credit hours). LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

Sophomore Year

Fall:

NAVS 0201 LEADERSHIP AND MANAGEMENT (3 credit hours). LEC. 3 Fundamentals of leadership and management theory vital to the effectiveness of Navy/Marine Corps officers.

NAVS 0201L NAVAL SCIENCE LABORATORY (0 credit hours). LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

Spring:

NAVS 0206 NAVIGATION (3 credit hours). LEC. 3. Theory and principles of piloting involving the use of visual and electronic aids.

NAVS 0202L NAVAL SCIENCE LABORATORY (0 credit hours). LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

Junior Year

Fall:

NAVS 0305 NAVAL SHIP SYSTEMS I (ENGINEERING) (3 credit hours). LEC. 3. Principles of ship design, construction, and stability. Introduction to thermodynamics and the steam cycle as applied to naval propulsion systems.

NAVS 0301L NAVAL SCIENCE LABORATORY (0 credit hours). LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

Spring:

NAVS 0306 NAVAL SHIP SYSTEMS II WEAPONS (3 credit hours). LEC. 3. Theory and employment of systems through a study of fundamentals principles of sensor, tracking, computational, and weapons delivery subsystems.

NAVS 0302L NAVAL SCIENCE LABORATORY (0 credit hours). LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

Senior Year

Fall:

NAVS 0405 NAVAL OPERATION AND SEAMANSHIP (3 credit hours). LEC. 3. Inland and International law governing maritime operations, communication procedures, and other naval/maritime operational procedures.

NAVS 0401L NAVAL SCIENCE LABORATORY (0 credit hours). LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

Spring:

NAVS 0402 LEADERSHIP AND ETHICS (3 credit hours). LEC. 3. Pr., NAVS 0201 and senior standing (or departmental approval). Integrates an intellectual exploration of Western moral traditions and ethical philosophy with a variety of topics, such as military leadership, core values, and professional ethics.

NAVS 0402L NAVAL SCIENCE LABORATORY (0 credit hours). LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

Marine Corps option:

Marine Corps option Midshipmen are not required to take NAVS 0206, Navigation or NAVS 0405, Naval Operations and Seamanship. Marine Corps option Midshipmen are required to take NAVS 0303 in lieu of NAVS 0306.

NAVS 0303 EVOLUTION OF WARFARE (3 credit hours). LEC. 3. Forms of warfare practices to identify historical continuity and change in the evolution of warfare. Explores the impact of historical precedent, economic factors and technological change on politico-military thought and action.

NAVS 0301L NAVAL SCIENCE LABORATORY (0 credit hours). LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

Marine Corps option Midshipmen are required to take NAVS 0304 in lieu of NAVS 0405

NAVS 0403 AMPHIBIOUS WARFARE (3 credit hours). LEC. 3. Historical survey of the development of amphibious doctrine and the conduct of amphibious operations. Emphasis on the evolution of amphibious warfare in the 20th century.

NAVS 0401L NAVAL SCIENCE LABORATORY (0 credit hours). LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military.

COLLEGE OF VETERINARY MEDICINE, NURSING and ALLIED HEALTH

INTRODUCTION

The College of Veterinary Medicine, Nursing and Allied Health (CVMNAH) is composed of two schools: the School of Veterinary Medicine (SVM) and the School of Nursing and Allied Health (SONAH). The SVM has four Departments to include the Department of Biomedical Sciences (DBS), Department of Pathobiology, (DP) Department of Large Animal Medicine (DLAM) and the Department of Small Animal Medicine (DSAM). The SONAH has two departments; the Department of Nursing (DN) and the Department of Allied Health Sciences. (DAHS)

The College in its current format was established in a farsighted Strategic Plan of Tuskegee University in 1996. This strategic move has enabled the College to advance the One Medicine – One Health concept that interlinks animal health with human health. At a time when over 75% of global epidemic diseases originate in animals and are transmitted to humans causing global terror, such a farsighted need by TU allowed it to create this unique College, the only one of its kind in the USA to advance such a critical concept of the integrativeness and oneness of health and diseases. Therefore the threats and impending pandemics such with avian influenza and even diseases such as HIV/AIDS and many others that are considering bioterror agents can be prevented only if these are prevented at the source with a deeper understanding of animal health.

- The TUSVM is one of 28 Schools/Colleges of Veterinary Medicine in the USA and is one of the originating members of the American Association of Veterinary Medical Colleges (AAVMC). But it is the only one in USA that is fully integrated serving African-Americans, Caucasian students, Hispanics, Asians, Native Americans and even international students. The TUSVM is fully accredited by the American Veterinary Medical Association (AVMA), Council on Education (COE).
- The TUSVM was established in 1945 for the training of African Americans (AA) at a time when AA did not have other opportunities to study veterinary medicine due to segregation and other racial impediments. In 1945, the USA had only ten Schools of Veterinary Medicine. It is estimated that fewer than five AA veterinarians were located in the Southern States at that time. It graduated its first class of fully qualified veterinarians in 1949. Now the nation has 28 schools of veterinary medicine and only one (TUSVM) caters to serving AA as well as others in a fully integrated manner.
- The TUSVM is the most balanced racially, ethnically and culturally among all schools of veterinary medicine. It is a unique place where true diversity shines in a school of veterinary medicine in the nation. The TUSVM has educated over 70% of the nation's AA veterinarians. It is estimated that 10% of all Hispanic veterinarians and more than 59% of all AA veterinarians who graduated during the last 5 – 7 years were educated at TUSVM.
- The faculty is dedicated, sensitive and of high caliber in their chosen fields of veterinary medicine with most having the DVM and the terminal degree (PhD) and/or are Board certified in their disciplines. Just like the students, the faculty is diverse with national and international renown. At least 75% of the basic sciences faculty holds both the DVM and PhD and nearly 60% are tenured.

The School of Nursing has a special legacy in Alabama as being the first School of Nursing in Alabama. The School of Veterinary Medicine, the only one located on an HBCU campus; and the only one of its kind among 28 schools/colleges of Veterinary Medicine in the USA, is committed to provide opportunities for African Americans (AA) and other minorities, often unavailable to

them at other institutions. The College offers four health professions degree programs; one in veterinary medicine (Doctor of Veterinary Medicine - DVM degree), a second in Nursing (BS degree), a third in Occupational Therapy (OT) and a fourth on Clinical Laboratory Sciences (CLS). The respective national health professions accrediting organizations accredit each of these.

STRATEGIC MISSION, GOALS AND OBJECTIVES

The strategic mission and vision of the TUSVM is to promote the tripartite mission of teaching, research and service in an academic environment of high achievement that encourages excellence in self-directed learning, intellectual curiosity, creativity, critical thinking and problem solving all enshrined with ethics at the core. The College, a flagship program at an HBCU, and the only School of Veterinary Medicine at an HBCU is committed to provide opportunities for African Americans (AA) and other minorities, often unavailable to them at other institutions. It supports integrative health sciences studies in four distinct health professions programs including Veterinary Medicine, Nursing, Occupational Therapy and Clinical Laboratory Sciences as well as graduate studies with Masters and PhD degrees.

The Nursing program was the first and is now one of two baccalaureate nursing program at an HBCU in the State of Alabama. Therefore, nursing, is in a very strategic position to increase the diversity of the nursing with African Americans prepared at the baccalaureate level. The College promotes qualitative and life-long learning for the global interdisciplinary practice of the health professions within the framework of the "One Medicine-One Health" concept.

The College is strategically positioned to exploit the link between animal health and human health to advance academic excellence coupled with passion and compassion; to all who value and promote diversity to serve the global community of the 21st century.

Our central goal is to train/prepare culturally sensitive and competent students to become successful health professionals in their chosen field in the CVMNAH. Therefore student learning coupled with outcomes assessment and continual improvements are intertwined dynamic activities. Essentially then, students who complete the rigorous professional studies in the CVMNAH must be culturally aware, culturally competent healthcare professionals who have qualified by passing the respective national health professions examinations and must ultimately become successful, high caliber health care scientists and professionals in their respective selected fields.

PROGRAMS/DEGREES OFFERED BY THE CVMNAH

The College offers four health professions degree programs. These are:

Doctor of Veterinary Medicine (DVM degree)
PhD in Integrative Biosciences in collaboration with the College of Agriculture, Environment and Nutrition Sciences (CAENS)

Bachelor of Science
- BS in Nursing and
- BS in Clinical Laboratory Sciences (CLS)

Master of Science:

MS in Occupational Therapy (MS in OT)
MS in Veterinary Sciences
MS in Tropical Animal Health

ACCREDITATION

Veterinary Medicine

The American Veterinary Medical Association (AVMA) Council on Education (COE) accredits the veterinary medicine degree program. The Tuskegee University School of Veterinary Medicine is fully accredited.

Nursing

Nursing is accredited by the National League of Nursing Accrediting Commission (NLNAC). The Nursing program is fully accredited.

Clinical Laboratory Sciences (CLS)

Clinical Laboratory is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

Occupational Therapy (OT)

Occupational Therapy is accrediting organization for OT is the Accreditation Council for Occupational Therapy (ACOTE).

OPPORTUNITIES FOR CAREERS IN VETERINARY MEDICINE, IN NURSING AND ALLIED HEALTH SCIENCES

Veterinary Medicine: Unlimited horizons await graduates in veterinary medicine. Although a majority of veterinarians are engaged in some form of clinical practice, there are great opportunities in the veterinary medical field. These areas include government (national, federal, state, county, municipal and foreign), providing services of a regulatory, inspection type, and homeland defense type, teaching, research, public health activities, armed forces, laboratory animal medicine, comparative animal medicine, aerospace medicine, diagnostic imaging, and protection of the environment. Increasingly, commercial firms are making use of veterinary medical skills in the testing and production of biological and pharmaceutical products.

The opportunities in Nursing and the Allied Health Sciences are also immense. At a time when the baby boom generation is beginning to retire, the need for Nurses and other Healthcare professionals has increased geometrically. In light of President Obama's new healthcare bill, the demand for the health professions workforce will undoubtedly increase substantially. Therefore, the CVMNAH is ready to train health professionals to address the local, national and global needs of the 21st century.

COLLEGE OF VETERINARY MEDICINE

PROFESSIONALISM

The profession of veterinary medicine maintains a positive public image. The CVMNAH students have been ambassadors of the Tuskegee University legacy and service to humanity for over half a century. Veterinarians are expected to be individuals of integrity, exemplary moral character, strong motivation, leadership ability, and sincere dedication to the service of society. One of the objectives of the SVM is to provide an environment that is conducive to the development of the proper attitudes and attributes in students who are to become members of the veterinary profession. Each veterinarian and veterinary student inherits this legacy and has an obligation to preserve and enhance it. All obligations and responsibilities require some effort and sacrifice. A professional image requires active individual and collective pursuit and may necessitate modification of pre-professional life-styles. Image alone, while not assuring the desired excellence in professional service provides a means of influencing the public's perception of the profession and guides first impressions. To ignore the importance of image is to squander the legacy.

Moreover, the behavior and appearance of faculty, students, and staff is continually on display for clients, visitors, and alumni. Appropriate dress and appearance require consideration of professionalism, safety, and practicality. Neatness reflects motivation, self-respect, confidence, and orderliness. Two related virtues are skill and precision, both desirable attributes of the successful veterinarian.

PROFESSIONAL STUDENT RESPONSIBILITIES

1. Students are expected to respect one another and to be sensitive in their interpersonal interactions to the individual differences in race, religion, ethnic origin, gender, sexual orientation, and any disability that may exist within the TUSVM community.
2. The student is not permitted to bring children or other guests to class unless permission for such visitation has been granted by the Office of the Dean and approved by the instructor of the class. Children and/or unauthorized guests are also prohibited from entering college pedagogic and/or didactic settings that directly or indirectly support instruction for the DVM degree, such as research laboratories, necropsy laboratories, and other auxiliary modules.
3. No pets are allowed on the campus unless they play a functional role in a course, an approved school-sponsored activity, or are current patients of the Veterinary Medical Teaching Hospital. Pets under medical care should be confined to the appropriate kennel and treatment areas of the Hospital and should not be brought to classrooms and/or laboratories.
4. No eating, drinking, smoking or tobacco chewing is permitted in classrooms/ labs.
5. Students are expected to treat all instructors with respect and courtesy and to attend designated classroom activities.
6. Students are expected to respect their classmates as well as the staff and faculty of the school. Loud, frequent, and/or prolonged discussions among students during class lectures are disruptive. Talking in class interferes with the ability of others to learn. Thus, students are expected to be quiet and attentive during classroom instruction. Violation of classroom disruption policies may be taken into consideration for course grades.
7. Students are expected to remain in class for the entire period except when unusual extenuating circumstances require them to leave early. In these cases, professional courtesy dictates that advance notice is given to the instructor.
8. The student is responsible for purchasing textbooks and other required course material during the first week of class.

9. The student is responsible for all material covered and assigned in each course for which he/she is registered. Absence from class does not relieve the student of this responsibility.
10. The student is expected to demonstrate acceptable standards of professional behavior, including appropriate dress and conduct in the classroom, laboratory and clinics.

RESPONSIBILITIES OF PROFESSIONAL FACULTY

The TUSVM is committed to providing each student with a rewarding educational experience through effective and efficient utilization of the classroom time periods assigned to a given course. The following are basic instructional expectations of each veterinary faculty member.

1. To be well prepared for each classroom/ laboratory session and to utilize the assigned class periods in an effective and efficient manner.
3. To communicate high academic and professional expectations to students.
4. To relate to each student, regardless of gender, race, religion, national origin, etc.
5. To treat each student fairly and with respect, regardless of the situation.
6. To foster integrity and academic/ professional honesty among students.
7. To provide quality instruction for assigned departmental and inter-departmental core and elective courses.
8. To provide academic counseling for students on a regular basis.
9. To provide the student with a course syllabus that includes a list of the competencies and skills to be learned by students, lecture schedule, information on examinations, and other class requirements that will provide a basis for evaluating the student's performance.
10. To employ such procedures as are necessary to ensure that the academic performance of students is evaluated fairly and impartially.
11. To schedule and maintain a reasonable number of office hours (at least 6 hours each week) for student conferences (academic advisement, etc.). Office hours should be scheduled at times convenient to both students and the faculty member. The specific time of a faculty member's office hours should be announced to the class, included in "Course Expectations," and posted on his/her office door.

THE PROFESSIONAL STUDENTS DRESS CODE

The purpose of a professional student dress code is to increase student achievement, promote safety, and enhance a positive school climate. An individual's dress, personal appearance and cleanliness, as well as behavior, should reflect sensitivity to and a respect for others, in line with the profession's oath. Students understand that they have chosen a "health care provider profession" and as such, providers are bound to the public they serve through human-animal interactions that demands the utmost care and sensitivity and involves professionalism and projection of personal images that do not degrade the veterinary profession and/or the institution responsible for the professional training program.

STANDARDS GOVERNING ACADEMIC PERFORMANCE

The School's Academic Advisory Committee monitors a student's academic progress throughout the professional program and makes appropriate recommendations to the Dean. The following guidelines are applicable to veterinary students.

1. Required Professional Courses: All courses outlined in the veterinary curriculum are classified as "required and/or essential" curricular offerings. Failure of a student to earn a minimum cumulative grade point average of 2.00 in required courses will result in one of the following actions: (1) school warning, (2) academic probation (university), (3) academic suspension, or (4) academic dismissal.
2. Elective Courses: Six (6) credit hours of elective courses are needed to satisfy the requirements for graduation.

ACADEMIC RULES AND REGULATIONS

Definitions:

- Academic Warning/Probation: Students are placed on academic probation by the School of Veterinary Medicine if they earn a "D" grade in any required professional course and maintain the 2.00 minimum cumulative grade point average. The student will be notified of his/her status in writing, and conditions relative to reinforcement activities may be stipulated for the succeeding semester. Performance at a "C" grade level or better in all courses taken during a given semester is required for removal of a probationary status.
- Academic Suspension: A status in which a student is prevented from enrolling in the School of Veterinary Medicine for a prescribed period of time because of the failure to meet minimal academic requirements. There is no guarantee of re-admission into the veterinary program.
- Academic Dismissal: is a status in which a student is academically dismissed because of a failure to meet minimal academic requirements. A student suspended from the veterinary program for the second time is considered to be dismissed and is not eligible for readmission.

Minimum Academic Requirements:

1. First-year students must earn a minimum grade point average of 1.70 at the end of the first semester and a cumulative grade point average of 2.0 or greater at the end of the first year.

Students who do not meet this requirement will be suspended from the professional veterinary program.

2. Second, Third and Fourth-year students must maintain a semester grade point average of 2.0 for each semester and maintain a minimum cumulative grade point average of 2.0. (Excluding electives as described on page 1, paragraph 3 under "Grading System"). Students who fail to meet this requirement will be suspended from the professional veterinary program.
3. Any student earning an “E” grade in any course in the veterinary program will be suspended from the School of Veterinary Medicine.
4. Although “D” grades are passing, they are considered unsatisfactory academic performance. A student earning “D” grades in sequential courses of the curriculum can be suspended from the School of Veterinary Medicine, i.e., Gross Anatomy 301 and 302, Microscopic Anatomy 309 and 310, Physiology 340 and 441, Pharmacology 442 and 543, and Pathology 426 and 427. Students suspended for “D” grades above and granted readmission must re-take the courses and earn a minimum of a “C” grade within the first two semesters of their readmission before they are allowed to continue in the professional program.
5. A student earning a “D” grade, regardless of cumulative GPA, will be placed on academic probationary status. Probationary status will be removed when the student has earned a minimum grade of “C” in each course during the subsequent semester.
6. A student earning more than 5 hours of “D” grades a semester, regardless of the cumulative GPA, may be suspended from the School of Veterinary Medicine.
7. A first-year student that receives academic suspension after the first semester will not be eligible for readmission until a minimum of one year after their original admission date. For example, a student admitted in fall of 2008 that is suspended after the completion of the first semester will not be eligible for readmission until the fall of 2010.
8. A first-year student that receives academic suspension after the completion of the second semester may petition for readmission for the second semester of the following academic year**.**

ACADEMIC REQUIREMENTS AND PROCEDURES

A student’s academic progress is monitored and evaluated during and at the end of every semester. Students experiencing academic difficulties will be counseled. Tutorial sessions or other reinforcement activities may be recommended or required. Satisfactory completion of any number of credit hours or years of study does not guarantee graduation from the School of Veterinary Medicine. The faculty reserves the right to recommend dismissal of any student whose conduct is in contravention to the ethical and professional standards attending the profession of veterinary medicine.

STUDENT RETENTION AND OUTCOMES ASSESSMENTS

It is the goal of the School to achieve and maintain a 95% retention of our students and 95% achievement on the North American Veterinary Licensing Examination (NAVLE). The outcomes assessment tools utilized include: written examinations, reports from internal and external committees, personal communications, observations and recommendations by faculty, staff and students as well as input from alumni and employers. The overall outcome of these

strategies has been the improvement of the NAVLE passing rate from 78% in 2007 to 95% in 2010.

Students who make an unsatisfactory grade (less than 70%) in any course are reported to the Academic Advisory Committee and the Associate Dean for Academic Affairs. The Associate Dean for Academic Affairs in consultation with the Teaching Learning Center contacts each student and provides academic counseling. This is a requirement for each student to make sure that they are provided with some form of academic enhancement to assure success through the veterinary program. In addition, there are peer tutorials organized through the Teaching Learning Center as well as individual student-faculty tutorial sessions. In addition to lectures, discussions, and laboratory sessions, an audiovisual/autotutorial laboratory is available to aid the students in assimilating basic principles and concepts.

In order to ensure that each student is fulfilling the clinical competency requirements, measurable learning objectives for each AVMA Clinical competency for each clinical rotation were developed and implemented. A database for Clinical Competency has been developed to facilitate the documentation and analysis of clinical competency activities.

THE VETERINARY CURRICULUM

The Veterinary Curriculum is a standard four-year academic program designed with two major divisions. These are the Preclinical Years followed by two years of Clinical Education. However, the fundamental concept that underlies the curriculum emphasizes integrative learning/teaching coupled with application to interrelate basic biomedical knowledge in problem solving and decision making of clinical and other veterinary professional responsibilities. This approach emphasizes connections between disciplines such that basic knowledge of structure (Gross Anatomy, Microscopic Anatomy) is interrelated to function (Physiology). These are covered in Year 1 of the curriculum. In Year 2, the abnormal or disease processes are described. Therefore, diseases or abnormalities that leads to dysfunction or disease states are studied on the macro level (Gross Pathology) or at the microscopic level (Microscopic Pathology) or in relation to dysfunctional systems manifestation (Clinical Pathology). These are then conjoined with etiological agents (microbiology, parasitology, toxicology, pharmacology etc.) as these cause diseases and malfunctions in body systems. Problem based learning and reviews are provided to fortify the need for integrating basic knowledge with applications to eventually diagnose and manage clinical cases. The use of problem based learning (PBL) or case based learning/teaching is interspersed in the curriculum. At the end of Year 2, students are given a comprehensive Qualifying Examination (QE). The primary objective of the QE is to provide a comprehensive objective examination in basic veterinary medical sciences. The examination is a self-assessment tool to identify areas of strengths and weaknesses in student performance in content areas of anatomy, physiology, pharmacology, microbiology and pathology. Tutorial and counseling sessions are available to ensure that each student succeeds in the rigorous veterinary curriculum.

In the Clinical Years, (Years 3 and 4), students are provided case-based learning while exposed to clinical medicine and surgery in both large (food animals, equine) and small/companion animals as well as other specialty areas. Students are expected to master clinical competencies in selected areas that have been identified as being key in the advances of veterinary medicine at TUSVM. Clinical competencies and outcomes assessment such as performance on NAVLE examination and other outcome measures are assessed to interject

continuous improvement in the teaching/learning process. Both field services for both large and small animals in the form of ambulatory clinical services are provided with emphasis on the rural, underserved communities of the Black Belt Counties of Alabama. Veterinary service to the community is taken very seriously and allows for the building of strong connections with rural families who otherwise are under-served and un-served.

GRADING SYSTEM

The grading system in the SVM may vary from course to course. Therefore, during the first week of each term, the instructor will provide students with the method of grading and course expectations in the course handout/syllabus. A letter grade of A, B, or C, and a minimum grade point average (GPA) of 2.00 or above on a 4.00 system is considered satisfactory; a letter grade of D and GPA of 2.00 or below is unsatisfactory.

All courses outlined in the professional curriculum for veterinary medicine are classified as "required and essential curricular offerings." Failure of a student to earn a grade of "C" in each required professional course will result in one of the following actions: (1) academic probation (School or University), (2) academic suspension, or (3) academic dismissal.

A (90-100%)	Excellent
B (80-89.9%)	Good
C (70-79.9%)	Satisfactory
D (60-69.9%)	Unsatisfactory but passing
E (below 60%)	Failure
I	Incomplete
Y	Unofficial drop/ withdrawal
WP	Withdrawal while passing
WF	withdrawal while failing

REQUIRED CORE COURSES IN THE VETERINARY CURRICULUM

First-Year (Fall Semester)

ANAT 301 Gross Anatomy	(4 credits)
ANAT 309 Microanatomy	(4 credits)
MBIO 311 Molecular Biology	(1 credit)
PHSI 340 Physiology	(5 credits)
SMED 391 Introduction to Veterinary Medicine	(1 credit)
Grand Rounds (Required)	

Total Credit Hours: 16

First-Year (Spring Semester)

ANAT 310 Gross Anatomy	(5 credits)
ANAT 302 Microanatomy	(3 credits)
MBIO 411 Microbiology	(4 credits)
PHSI 441 Physiology	(5 credits)

Total Credit Hours: 17

Second-Year (Fall Semester)

MBIO 412 Virology	(2 credits)
MBIO 413 Immunology	(2 credits)
MBIO 414 Virology/Immunology lab	(1 credit)
PATH 425 Parasitology	(4 credits)
PATH 426 General Pathology	(4 credits)
PHSI 442 Pharmacology I	(3 credits)
PHSI 445 Endocrinology	(2 credits)
MBIO 614 Epidemiology	(2 credits)

Total Credit Hours: 20

Second-Year (Spring Semester)

PATH 427 Systemic Pathology	(3 credits)
PATH 428 Pathology/Clin. Path. Laboratory	(1 credit)
PATH 429 Clinical Pathology	(3 credits)
PHSI 546 Toxicology	(4 credits)
LMED 570 Intro. To Vet Surgery	(3 credits)
SMED 493 Physical Diagnosis	(1 credit)
LMED 494 Prob. Based Med. I	(1 credit)
PATH 626 Public Health	(2 credits)
PHSI 543 Pharmacology II	(3 credits)

Total Credit Hours: 21

Third-Year (Fall Semester)

LMED 550 Large Animal Medicine I	(4 credits)
LMED 554 Large Animal Surgery	(3 credits)
SMED 571 Diagnostic Imaging	(3 credits)
SMED 572 Small Animal Med/Surg I	(5 credits)
SMED 576 Small Animal Surgery I	(1 credit)
SMED 595 Fundamentals of Clinics I	(3 credits)
PATH 627 Avian Medicine	(2 credits)
LMED 591 Ethics, Juris., & Pract. Manag.	(1 credit)

Total Credit Hours: 22

Third-Year (Spring Semester)

LMED 651 Large Animal Medicine II	(4 credits)
LMED 653 Ther. & Hrd. Health	(5 credits)
SMED 574 Small An. Med/Sur II	(5 credits)
SMED 577 Small An. Surgery II	(1 credit)
SMED 596 Fundamentals of Clinics II	(4 credits)
PATH 628 Laboratory Animal Medicine	(2 credits)
LMED 589 Prob. Based Med. II	(1 credit)

Total Credit Hours: 22

Fourth-Year (Fall Semester)

SMED 689 Prob. Based Med. III	(1 credit)

LMED 691 Professional Orientation	(Required)
SMED 695 Clinics	(12 credits)
Grand Rounds	(Required)
Elective courses	(2-6 credits)
Total Credit Hours: 13-19	

Fourth-Year (Spring Semester)

SMED 697 Externship/Preceptorship	(6 credits)
LMED 696 Clinics	(12 credits)
Elective courses	(2-6 credits)
Total Credit Hours: 18-24	

COURSE DESCRIPTION

*Note: Only those students registered in the School of Veterinary Medicine are eligible to take professional courses. Nonprofessional and dual level courses are available to students from other academic areas. Course descriptions of graduate-level courses are listed in the various departmental listings following the required core professional courses for veterinary medicine**.**

DEPARTMENT OF PATHOBIOLOGY

MBIO 0208. MEDICAL MICROBIOLOGY. 2nd Semester. Lect. 2, Lab 4, 3 credits. For non-veterinary students. This course is a presentation of basic principles and current concepts in general microbiology, the sanitary sciences, host-parasite interactions, the immune response, and pathogenic microbiology with public health applications. Prerequisites: Anatomy 0125, Chemistry 0221 and 0222, Chemistry Lab 0223 and 0224.

COURSES PRIMARILY FOR VETERINARY STUDENTS

MBIO 0311. INTRODUCTION TO BIOETHICS, MOLECULAR BIOLOGY, AND COMPUTER APPLICATIONS. 1st Semester. Lect. 0, Lab 2, 1 credit. This course consists of three blocks of study. The first block provides basis introductory level information relative to bioethical concepts and considerations in the medical profession. The second block investigates the basic principles of molecular biology and biotechnology and the third block provides "hands-on" experience with various computer applications.

MBIO 0411. BACTERIOLOGY AND MYCOLOGY. 2nd Semester. Lect. 2; Lab 4, 4 credits. This course deals with basic principles of medical microbiology that are of importance to the veterinarian. Emphasis is placed on current information related to basic and sanitary microbiology, and the biology of pathogenic bacterial and mycotic agents of clinical and practical importance.

MBIO 0412. VIROLOGY. 1st Semester. Lect. 2, Lab 0, 2 credits. This course deals with basic concepts and principles of viruses and viral infections. Emphasis is placed on viral agents of basic, clinical and practical importance. Prerequisite: MBIO 0411.

MBIO 0413. IMMUNOLOGY. 1st Semester. Lect. 2, Lab 0, 2 credits. This course deals with the structure, function, and kinetics of immune responses in relation to infectious, neoplastic, allergic, immunodeficiency, and autoimmune diseases. Prerequisites: MBIO 0411.

MBIO 0414. VIROLOGY/IMMUNOLOGY LAB. 1st Semester, Lect. 0; Lab 2, 1 credit. This course covers general laboratory for MBIO 0412 and MBIO 0413.

MBIO 0614. EPIDEMIOLOGY - PRINCIPLES AND APPLICATIONS. 1st Semester, Lect. 2, Lab 0, 2 credits. In this course, the emphasis will be on basic epidemiologic principles and methods that are relevant to the study of disease in populations. These will be followed by appropriate case examples. The dynamics of health/ill health in populations and population interactions will be studied systematically and analytically. The basic concepts and methodologies of importance in Epidemiology will be coupled with analytic methods including biostatistics, animal health economics and computer simulation and modeling techniques that are used to solve epidemiologic problems.

PATH 0425. PARASITOLOGY. 1st Semester. Lect. 3, Lab 3, 4 credits. This course deals with the classification, morphology, life history, mode of transmission, pathogenicity, control, and diseases caused by parasites of importance in animals. Emphasis is placed on the identification of parasites and the diagnosis of parasitic diseases.

PATH 0426. GENERAL PATHOLOGY. 1st Semester. Lect. 3, Lab 3, 4 credits. This course deals with basic and fundamental disease processes referable to and affecting the body as a whole. Emphasis is placed on the base knowledge and applied skills needed for logical reasoning when solving problems related to clinical medicine and surgery. Predisposing factors, etiologic agents, pathogenesis, and lesions are included in the discussions. Prerequisites: ANAT 0302 and ANAT 0310.

PATH 0427. SYSTEMIC PATHOLOGY. 2nd Semester. Lect 3, Lab 0, 3 credits. This course is a continuation of PATH 426 General Pathology; and it builds upon the student=s knowledge of basic pathologic alterations that occur in the body as a whole. Emphasis is placed on diseases that involve specific tissues and organ systems. Information is provided relative to etiologic factors, pathogenesis, pathologic anatomy, clinical findings, and the pathophysiology of disease. The fundamental disease processes studied in VM 426 are applied on a system basis. Prerequisites: PATH 0426.

PATH 0428. PATHOLOGY LABORATORY. 2nd Semester. Lect. O, Lab 3, 1 credit. This laboratory course correlates with PATH 0427 and with PATH 0429. Emphasis is placed on practical exercises related to concepts and principles involved in the morphologic and clinical pathology findings in disease.

PATH 0429. CLINICAL PATHOLOGY. 2nd Semester. Lect. 3, Lab 0, 3 credits. This course is designed to provide in-depth discussions in hematology, blood clinical chemistry, urinalysis, cytology, fluid, electrolyte and acid-base balance. Laboratory sessions are utilized to provide hands-on experience in clinical instrumentation, and to provide case oriented problem-solving experiences. Prerequisites: PATH 0426.

PATH 0626. PUBLIC HEALTH. 2nd Semester, Lect. 2, Lab 0, 2 credits. This course deals with common public health issues that impact both veterinary and human medicine. Emphasis is placed on food safety, sanitation, meat and poultry inspection, and the principles of hazard analysis and critical control points.

PATH 0627. AVIAN MEDICINE. 1st Semester. Lect. 2, Lab 0, 2 credits. This course deals with common disease conditions in poultry and other avian species, with emphasis on treatment, control measures, and management problems encountered by the poultry industry.

PATH 0628. LABORATORY ANIMAL MEDICINE. 2nd Semester. Lect. 2, Lab 0, 2 credits. In this course, participants are introduced to the taxonomy, biology, and diseases of commonly used laboratory animals. Emphasis is placed on animal models of human diseases, ethical use of animals in research, pet psychotherapy as well as the diagnoses, treatment, and prevention of disease. Selected zoo species, amphibians, reptiles, and fishes are included in the discussions. Prerequisite: PATH 0427.

ELECTIVE AND GRADUATE COURSES

MBIO 0518. FOOD SAFETY AND QUALITY. 1st and 2nd Semesters. Lect. 3, Lab 0, 3 credits. This course deals with historic and contemporary issues related to foods of animal origin. Emphasis is placed on food safety and quality control from production to consumption.

MBIO 0519. PUBLIC SERVICE CAREER OPPORTUNITIES. 1st and 2nd Semesters. Lect. 3, Lab 0, 3 credits. This course encompasses veterinary medical and allied health topics related to key employment practices and policies. Emphasis is placed on the public health sectors of veterinary medicine and the allied sciences at the international, national, state, and local levels.

MBIO 0520. ADVANCED PATHOGENIC MICROBIOLOGY. 2nd Semester. Lec. 1, Lab 4, 3 credits. In this course, a basic introduction to research and research methodology is provided. Current research topics that emphasize pathogenic mechanisms of infectious microbes of importance in animal diseases are discussed. Participants are provided an opportunity to utilize various immunologic and molecular biologic techniques that have application in microbial research, such as immunodiffusion analysis, electrophoresis, cell-mediated immune assays, immunofluorescence, ELISA=s, DNA isolation, restriction enzyme digest, DNA amplification (PCR), and nucleic acid probing. Prerequisite: MBIO 0411 and MBIO 0412 or their equivalent, and approval of the course coordinator.

MBIO 0521. SPECIAL PROBLEMS IN MICROBIOLOGY I. 1st and 2nd Semester. Lect. 0, Lab 4, 2 credits. In this courses, emphasis is placed on special topics and techniques of current

interest in medical microbiology. Lectures, discussions, and demonstration laboratories and used as instructional modes. A written report summarizing a topic or technique and its application to the participant=s field of interest is required. Prerequisite: MBIO 0411 or its equivalent and approval of the course coordinator.

MBIO 0522. SPECIAL PROBLEMS IN MICROBIOLOGY II. 1st and 2nd Semesters, Summer. Lect. 0, Lab 4, 2 credits. This course serves to initiate feasibility studies leading to a research plan of work, under the supervision of the participant=s major professor.

MBIO 0523. ADVANCED IMMUNOLGY. 1st Semester. Lect. 1, Lab 2, 2 credits. This course is designed for veterinary and graduate students who wish to pursue an advanced study of immune reactions. Emphasis is placed on clinical immunology as it relates to domestic animals. Prerequisite: MBIO 0411 and MBIO 0412 or equivalents and approval of the course coordinator.

MBIO 0527. SPECIAL PROBLEMS IN THE BIOMEDICAL SCIENCES. 1st and 2nd Semesters, Summer. Lect. 0, lab 4-12, 2-6 credits. This course is designed for students enrolled in the School's non-degree granting program of study who wish to pursue a continuing education initiative. Participants may pursue a project of interest in the biomedical sciences and technology.

MBIO 0600. GRADUATE RESEARCH SEMINAR I. 1st Semester and Summer. Lect. 1, Lab 0, 1 credit. This course includes practical examples of proper conduct of research, issues with copy right violation, plagiarism, interpretation of published work among other academic requirements including discussions on basic research methods, and a review of current research topics. Oral presentations are and/or reports are required

MBIO 0601. GRADUATE RESEARCH SEMINAR II. 2nd Semester and Summer. Lect. 1, Lab 0, 1 credit. This course includes practical examples of proper conduct of research, issues with copy right violation, plagiarism, interpretation of published work among other academic requirements including discussions on basic research methods, and a review of current research topics. Oral presentations are and/or reports are required

MBIO 0600. GRADUATE RESEARCH SEMINAR I. 1st Semester and Summer. Lect. 1, Lab 0, 1 credit. This course includes discussions on basic research methods, and a review of current research topics. Oral presentations are required.

MBIO 0601. GRADUATE RESEARCH SEMINAR II. 2nd Semester and Summer. Lect. 1, Lab 0, 1 credit. This course is a continuation of MBIO 600, and includes a review of current research topics. Oral presentations are required.

MBIO 0660. BIOMEDICAL STATISTICS. 1st Semester. Lect. 3, Lab 0, 3 credits. The conceptual and theoretical basis of biomedical research design is examined. Appropriate statistical methods which correspond to and are consistent with the biomedical research design will be studied. These include both parametric and nonparametric methods. Descriptive statistics, probability distributions, comparative statistics (t test, ANOVA) and causal analysis (chi square, regression and other multivariate techniques) will be covered with emphasis on

inferential aspects of statistics and on the interpretation of results which would be rational and meaningful in biomedicine. Students will be exposed to the use of manual computational methods followed by the use of computerized statistical package for data analysis.

MBIO 0661. ADVANCED EPIDEMIOLOGY. 2nd Semester (alternate years). Lect. 3, Lab 0, 3 credits. This course will build upon the introductory course in Epidemiology (MBIO 0614). It will emphasize the analysis (both qualitative and quantitative) of the dynamics of health/ill health processes and interactions in populations, systematically. Retrospective and prospective studies, the use of epidemiologic models (both static and dynamic) and systems analysis techniques and other problem solving tools in analytical epidemiology will be presented and applied to selected cases. Independent study and developing a research paper on a selected epidemiologic topic will be encouraged.

MBIO 0662. DISEASE CONTROL AND ERADICATION. 2nd Semester (alternate years). Lect. 3, Lab 0, 3 credits. Approaches used to control diseases will be considered systematically with emphasis on those infections which have implications in international health (especially tropical health) in terms of animal/human problems. Epidemiologic, ecological and economical considerations will form the conceptual framework via which disease control concepts will be examined. Mass screening, immuno-diagnostic, biochemical and other techniques applicable in populations will be evaluated. The use of computer simulation models and other epidemiologic models in evaluating effective and economical disease control/eradication avenues will be investigated.

MBIO 0663. INFORMATION TECHNOLOGY IN BIOMEDICINE (BIOMEDICAL INFORMATICS). 2nd Semester. Lect. 3, Lab 0, 3 credits. This course (biomedical informatics) is designed to enable biomedical students to exploit information technology (IT) to manage the expansive biomedical knowledge base systems in advancing their scholarly and professional activities. The course will emphasize the use of information technologies to create compound scientific documents, access and examine the Internet and the World wide Web (WWW), develop hypermedia systems and scientific presentation tools. Current use of bioinformatics in the new emerging area of genomics will be examined. Hands-on experience in computer applications will be emphasized.

MBIO 0666. SPECIAL PROBLEMS IN EPIDEMIOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, Lab 6, 3 credits. This course will enable graduate students to explore special population based problems. It will be mostly independent studies under the direction of the instructor.

MBIO 0700. RESEARCH. 1st and 2nd Semesters, Summers. 1-6 credits. This course deals with specific research thesis projects under the supervision of the graduate student=s major professor. Hours are arranged.

MBIO 0701. RESEARCH IN EPIDEMIOLOGY. 1st and 2nd Semesters, Summer. 1-6 credits. This course is designed for graduate students majoring in Epidemiology.

MBIO 0752. CONTINUOUS REGISTRATION. 1st and 2nd Semesters, Summer. R credit. This course is designed for graduate students in the process of writing their thesis and/or preparing for examinations.

MBIO 0754. CANDIDATE FOR DEGREE. 1st and 2nd Semesters, Summer. R credit. This course is designed for graduate students who have completed all requirements and will graduate during the semester of enrollment.

PATH 0630. SPECIAL PROBLEMS IN ANATOMIC PATHOLOGY. 1st and 2nd Semesters. Lect. 0, lab 6, 3 credits. In this course, participants are provided an opportunity to gain in-depth exposure to the morphology and pathophysiology associated with disease processes. Also, participant may elect to pursue a special project of interest in which pathological processes are emphasized. Prerequisite: PATH 0427.

PATH 0631. SPECIAL PROBLEMS IN CLINICAL PATHOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, lab 6, 3 credits. This course provides advanced skills with clinical instruments related to hematology, clinical chemistry, electrolytes, acid-base balance, and urinalysis. Detailed discussions on clinical tests and their application are presented. Participants must be able to describe abnormalities observed on peripheral blood smears, perform various laboratory tests, and correctly interpret the results. Prerequisite: PATH 0427 AND path 0429.

PATH 0632. SPECIAL PROBLEMS IN PARASITOLOGY. 1st and 2nd Semesters, Summer, Lect. 0, lab 4, 2 credits. In this course, participants are provided an opportunity to collect, identify, preserve, and mount parasitic specimens. Also, participants may elect to pursue an individualized problem-solving project with an emphasis on parasitology; a term paper is required. Prerequisite: PATH 0425.

PATH 0633. ADVANCED HELMINTHOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, lab 6, 3 credits. This course includes a descriptive and detailed study of helminthes. In consultation with the course coordinator, participants may pursue individualized project; a term paper is required. Prerequisite: PATH 0425.

PATH 0634. ADVANCED ENTOMOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, lab 6, 3 credits. This course includes a detailed study of arthropods that affect domestic animals. Participants are expected to collect and identify arthropods of medical importance; a term paper is required. Prerequisite: PATH 0425.

PATH 0635. ADVANCED PROTOZOOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, lab 6, 3 credits. This course includes a detailed study of important pathogenic protozoa that affect domestic animals. In consultation with the course coordinator, participants may pursue individualized projects; a term paper is required. Prerequisite: PATH 0425.

PATH 0636. DIAGNOSTIC CYTOLOGY. 1st and 2nd Semesters. Lect. 0, lab 6, 3 credits.
This course emphasizes cell morphology and cell populations in malignant and non-malignant

diseases. The conceptual basis of diagnostic cytology is applied in the study of inflammation, neoplasia, and tissue specimen collection and preparation.
Prerequisites: PATH 0427 and PATH 0429.

PATH 0637. INTERPRETATION OF CLINICAL PATHOLOGICAL DATA. !st and 2nd Semesters. Lect., lab varies 2 credits. This course provides students with a problem-solving approach to the interpretation of clinical pathological data by utilizing case studies, small group discussion and audio-visual materials. Prerequisites: PATH 0427 and PATH 0429.

DEPARTMENT OF BIOMEDICAL SCIENCES

ANAT 0125. HUMAN ANATOMY. 1st Semester. Lect. 3, Lab 3, 4 credits. For nonveterinary students. This course includes a general study of gross and microscopic aspects of human anatomy. Articulated skeleton, disarticulated bones, preserved specimens, charts, and models are used as teaching aids.

PHSI 0303. HUMAN PHYSIOLOGY. 2nd Semester. Lect. 3, Lab 3, 4 credits. For nonveterinary students. This course is designed to acquaint students with some of the regulatory mechanisms of the body. Emphasis will be placed on the functions of body systems regulating the internal environment. Prerequisites: ANAT 0125, CHEM LECT. 0221 and 0222, CHEM LAB. 0223 and 0224.

COURSES PRIMARILY FOR VETERINARY MEDICAL STUDENTS

ANAT 0301. GROSS ANATOMY I. 1st Semester. Lect. 1, Lab 9, 4 credits. This course deals with a topographic and systemic anatomic view of the canine and feline species. Emphasis is placed on the dissection of the canine carcass. Prosections, plastinated specimens, videos and slides are utilized as instructional aids.

ANAT 0302. GROSS ANATOMY II. 2nd Semester. Lect.2, Lab 9, 5 credits. This course is a continuation of ANAT 0301, and includes a topographic and systemic anatomic view of the equine, bovine, caprine, and porcine species. Emphasis is placed on anatomical structures relevant to procedures. This course also covers veterinary functional neuroanatomy. Prerequisite: ANAT 0301, ANAT 0309, and PHSI 0340.

ANAT 0309. MICROSCOPIC ANATOMY I. 1st Semester. Lect. 2, Lab 4, 4 credits. This course includes a study of the microscopic structure of cells, tissues, organs and organ systems (nervous, lymphoid, cardiovascular, and integument) as well as their functional significance and clinical relevance. Early embryology and development of higher vertebrates with emphasis on genetic and congenital developmental anomalies are discussed.

ANAT 0310. MICROSCOPIC ANATOMY II. 2nd Semester. Lect. 2, Lab 3, 3 credits. This course is a continuation of ANAT 0309. Emphasis is placed on the microscopic structure,

functional relationships, and clinical relevance of organs and organ systems (digestive, respiratory, urinary, male and female reproductive, endocrine and special senses). The embryology and development of each organ system are discussed. Prerequisite: ANAT 0309.

PHSI 0340. PHYSIOLOGY I. 1st Semester. Lect. 4, Lab 2, 5 credits. This course deals with the molecular and cellular basis of physiological regulation while integrating the functions of the fluid compartment, nervous, cardiovascular, and renal systems into organismal homeostasis.

PHSI 0441. PHYSIOLOGY II. 2nd Semester. Lect. 4, Lab 2, 5 credits. This course is a continuation of PHSI 0340. Emphasis is placed on contributions made by respiratory function, acid-base balance, endocrine, reproductive, gastrointestinal, and body temperature regulatory functions to the maintenance of homeostasis. Prerequisite: PHSI 0340.

PHSI 0442. PHARMACOLOGY. 1st Semester. Lect. 3, Lab 0, 3 credits. This course deals with essential pharmacological principles. Emphasis is placed on drugs of veterinary significance and their respective physiochemical properties, pharmacokinetics, pharmacodynamics, mechanisms of action, indications, and contraindications. Prerequisite: PHSI 0441.

PHSI 0445. ENDOCRINOLOGY. 1st Semester. Lect. 2, Lab 0, 2 credits. This course deals with physiology of endocrine organs including the hypothalamus, pituitary, pineal, male and female gonads, thyroid, parathyroid, adrenal, placenta, and argentaffin system (APUD cells). Emphasis is placed on mechanism of action and relating hypo/hyper secretion of a hormone with clinical diseases.

PHSI 0543. PHARMACOLOGY II. 2nd Semester. Lect. 3, Lab 0, 3 credits. This course is a continuation of PHSI 0442 and deals with chemotherapy of microbial, parasitic, viral, fungal, and neoplastic diseases. Emphasis is placed on the mechanisms of drug action, clinical use, and advances in veterinary pharmacology. Prerequisite: PHSI 0442.

PHSI 0546. TOXICOLOGY. 2nd Semester. Lect. 4, Lab 0, 4 credits. This course deals with basic clinical and diagnostic aspects of toxic agents of veterinary medical importance including pesticides, metals, poisonous plants, mycotoxins, zootoxins, drugs, feed additives, industrial and commercial toxicants, household products, and water pollutants. Emphasis is placed on the sources, physical and chemical properties, absorption, distribution, mechanisms of action, biotransformation, and excretion of toxic agents. Also, the emphasis is placed on approaches to investigate and treat intoxications, and to understand the biochemical and pathophysiological processes through which the organ systems react to toxicants. Prerequisite: PHSI 0442.

GRADUATE AND ELECTIVE COURSES

ANAT 0301G. GROSS ANATOMY I. 1st Semester. Lect. 1, Lab 9, 4 credits. This course deals with a topographic and systemic anatomic view of the canine and feline species. Emphasis is placed on the dissection of the canine carcass. Prosections, plastinated specimens, videos and slides are utilized as instructional aids.

ANAT 0302G. GROSS ANATOMY II. 2nd Semester. Lect.2, Lab 9, 5 credits. This course is a continuation of ANAT 0301, and includes a topographic and systemic anatomic view of the equine, bovine, caprine, and porcine species. Emphasis is placed on anatomical structures relevant to procedures. This course also covers veterinary functional neuroanatomy. Prerequisite: ANAT 0301, ANAT 0309, and PHSI 0340.

ANAT 0309G. MICROSCOPIC ANATOMY I. 1st Semester. Lect. 2, Lab 4, 4 credits. This course includes a study of the microscopic structure of cells, tissues, organs and organ systems (nervous, lymphoid, cardiovascular, and integument) as well as their functional significance and clinical relevance. Early embryology and development of higher vertebrates with emphasis on genetic and congenital developmental anomalies are discussed.

ANAT 0310G. MICROSCOPIC ANATOMY II. 2nd Semester. Lect. 2, Lab 3, 3 credits. This course is a continuation of ANAT 0309. Emphasis is placed on the microscopic structure, functional relationships, and clinical relevance of organs and organ systems (digestive, respiratory, urinary, male and female reproductive, endocrine and special senses). The embryology and development of each organ system are discussed. Prerequisite: ANAT 0309.

ANAT 0506. SPECIAL PROBLEMS IN ANATOMY. 1st and 2nd Semesters, Summer. Lect.0, Lab 4, 2 credits. Participants may pursue special projects of interest, individually or in small groups, in the areas of gross anatomy, applied anatomy, neuroanatomy, histological techniques, and in anatomical techniques. Prerequisites: ANAT 0301 and ANAT 0309 or Vertebrate Biology with approval of the course instructor.

ANAT 0507. INTRODUCTION TO VETERINARY ACUPUNCTURE. 1st Semester. Lect. 1, Lab 2, 2 credits. This course provides participants with a basic understanding of veterinary acupuncture knowledge and skills. Emphasis is placed on the theory of Traditional Chinese Medicine (TCM). TCM pathology and diagnosis, canine and equine acupuncture points and channels, and acupuncture techniques, therapies and analgesia. Participants interact with the instructor in the practice of acupuncture diagnosis and treatment. Prerequisite: Fourth year veterinary student status.

ANAT 0509. ADVANCED CLINICAL NEUROANATOMY. 2nd Semester. Lect. 1, Lab 2, 2 credits. This course is designed for graduate, professional, and undergraduate students with an interest in the functional mechanisms of the nervous system, the problems that arise when specific lesions exist, the pathobiology of selective neurologic disorders, and the diagnostic and treatment approaches for nervous system disorders. Prerequisites: Third and/or fourth year veterinary student status.

PHSI 0340G. PHYSIOLOGY I. 1st Semester. Lect. 4, Lab 2, 5 credits. This course deals with the molecular and cellular basis of physiological regulation while integrating the functions of the fluid compartment, nervous, cardiovascular, and renal systems into organismal homeostasis.

PHSI 0441G. PHYSIOLOGY II. 2nd Semester. Lect. 4, Lab 2, 5 credits. This course is a continuation of PHSI 0340. Emphasis is placed on contributions made by respiratory function,

acid-base balance, endocrine, reproductive, gastrointestinal, and body temperature regulatory functions to the maintenance of homeostasis. Prerequisite: PHSI 0340.

PHSI 0512. RED CELL PHYSIOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, Lab 4, 2 credits. This is a survey course on biomedical problems related to red blood cell physiology. Evaluation of performance is based on examinations, laboratory work, and written assignments. Prerequisites: PHSI 0543 and approval of the course coordinator.

PHSI 0513. CARDIOVASCULAR PHYSIOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, Lab 4, 2 credits. In this course, participants are required to perform literature reviews and/or pilot experiments related to cardiovascular, renal, and respiratory systems. A written report is required. Evaluation of performance is based on examinations, laboratory work, and written assignments. Prerequisites: PHSI 0543 and approval of the course coordinator.

PHSI 0514. REPRODUCTIVE ENDOCRINOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, Lab 4, 2 credits. In this course, participants are introduced to modern concepts in reproductive research and radioimmunoassay techniques. Special emphasis is placed on protein, steroid and prostaglandin assays. Evaluation of performance is based on examinations, laboratory work, and written assignments. Prerequisites: PHSI 0543 and approval of the course coordinator.

PHSI 0515. EXPERIMENTAL PHYSIOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, Lab 4, 2 credits. Participants are introduced to current concepts, principles, techniques, procedures and bioinstrumentation in applied physiology. Emphasis is placed on experimental designs, animal models, and the evaluation of scientific data. Evaluation of performance is based on examinations, laboratory work, and written assignments. Prerequisites: PHSI 0543 and approval of the course coordinator.

PHSI 0516. EXPERIMENTAL PHARMACOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, Lab 4, 2 credits. Participants are introduced to current concepts, principles, techniques, procedures and bioinstrumentation in applied pharmacology. Emphasis is placed on experimental designs, animal models, and the evaluation of scientific data. Evaluation of performance is based on examinations, laboratory work, and written assignments. Prerequisites: PHSI 0543 and approval of the course coordinator.

PHSI 0517. EXPERIMENTAL TOXICOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, Lab 4, 2 credits. In this course, laboratory techniques that are applied to toxicological problems are presented. Emphasis is placed on biochemical techniques, instrumental analysis, experimental design, and data interpretation. Written laboratory reports are required. Evaluation of performance is based on examinations, laboratory work and written assignments. Prerequisites: PHSI 0546 and approval of the course coordinator.

PHSI 600. GRADUATE SEMINAR I. 1st Semester and Summer. Lect. 1, Lab 0, 1 credit. This course includes discussions on basic research methods, and a review of current research topics. Oral presentations are required.

PHSI 0601. GRADUATE SEMINAR II. 2nd Semester and Summer. Lect. 1, Lab 0, 1 credit. This course is a continuation of PHSI 0600 and includes a review of current research topics. Oral presentations are required.

PHSI 0612. CLINICAL PHYSIOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, Lab 4, 2 credits. This course deals with clinical and experimental research pertinent to animal and human physiology in health and disease. Evaluation of performance is based on examinations, laboratory work, and written assignments. Prerequisite: PHSI 0441.

PHSI 0613: CLINICAL PHARMACOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, Lab 4, 2 credits. This course emphasizes the application of pharmacology in clinical situations, including the rational use of drugs and principles of drug disposition. The commonly used drugs in veterinary practice are discussed. Evaluation of performance is based on examinations, laboratory work, and written assignments. Prerequisite: PHSI 0543.

PHSI 0614. ENVIRONMENTAL TOXICOLOGY. 1st and 2nd Semesters. Lect. 0, Lab 4, 2 credits. This course deals with toxicological principles, testing procedures, air pollution, and the health effects of hazardous waste. Also, mechanisms of action, management and treatment of environmental and industrial toxicants are stressed. Evaluation of performance is based on examinations, laboratory work, and written assignments. Prerequisite: PHSI 0546.

PHSI 615. MOLECULAR TOXICOLOGY. 1st Semester, Lect. 0, Lab 4, 2 credits. This course deals with laboratory techniques applicable to determining the effects of toxicants on various structures and chemical components of the cell. Evaluation of performance is based on examinations, laboratory work, and written assignments. Prerequisite: PHSI 0546.

PHSI 0616. AQUATIC TOXICOLOGY. 2nd Semester. Lect. 0, Lab 4, 2 credits. This course deals with effects of pesticides and heavy metals on aquatic animal life. Emphasis is placed on acute and chronic toxicity testing, mechanisms of action, biotransformation, detoxification of water pollutants, and hazard evaluations. Evaluation of performance is based on examinations, laboratory work, and written assignments. Prerequisite: PHSI 0546.

PHSI 0617. CLINICAL PHARMACOKINETICS. 2nd Semester and Summer. Lect. 0, Lab 4, 2 credits. This course deals with the application of pharmacokinetic principles to clinical dosage design in individual patients. Evaluation of performance is based on examinations, laboratory work, and written assignments. Prerequisite: PHSI 0543.

PHSI 0618. CARDIOVASCULAR PHARMACOLOGY. 1st and 2nd Semesters, Summer. Lect. 0, Lab 4, 2 credits. This course deals with recent advances in cardiovascular pharmacology. Evaluation of performance is based on examinations, laboratory work, and written assignments. Prerequisite: PHSI 0543 or approval of the course coordinator.

PHSI 0619. SPECIAL PROBLEMS IN DEVELOPMENTAL AND NEUROBEHAVIORAL TOXICOLOGY. 2nd Semester and Summer. Lect. 2, Lab 0, 2 credits. This course deals with the review and discussion of significant advances and discoveries of putative human and behavioral teratogens, including mechanisms of action, epidemiological studies and practical approaches for

evaluating the exposed fetus and neonate. Evaluation of performance is based on examinations, laboratory work, and written assignments. Prerequisite: PHSI 0543 or approval of the course coordinator.

PHSI 0700. RESEARCH. 1st and 2nd Semester, Summer. 1-6 credits. This course deals with specific research thesis projects under the supervision of the graduate student's major professor. Hours are arranged.

PHSI 0752. CONTINUOUS REGISTRATION. 1st and 2nd Semesters, Summer. R credit. This course is designed for graduate students in the process of writing their thesis and/or preparing for examinations.

PHSI 0754. CANDIDATE FOR DEGREE. 1st and 2nd Semesters, Summer. R credit. This course is designed for graduate students who have completed all requirements and will graduate during the semester of enrollment.

DEPARTMENTS OF SMALL AND LARGE ANIMAL MEDICINE AND SURGERY

COURSES PRIMARILY FOR VETERINARY MEDICAL STUDENTS

LMED 0494. PROBLEM BASED MEDICINE I. 2nd Semester. Lect. 0, Lab 3, 1 credit. This course utilizes clinical presentations and problem-solving skills by the students to gain an understanding of course material taught in years 1 and 2 of the professional curriculum. The rationale for therapeutic intervention is also discussed. Students will work in groups and are responsible for gathering and presenting the information to the class.

LMED 0550. LARGE ANIMAL MEDICINE I. 1st semester. Lect. 4, Lab 0, 4 credits. This course deals with the non-infectious disease problems of farm animals (cattle, horses, sheep, goats, and swine). Emphasis is placed on etiological factors, symptomatology, diagnosis, prevention, therapeutics, and health care management.

LMED 0554. LARGE ANIMAL SURGERY. 1st Semester. Lect. 2, Lab 3, 3 credits. This introductory course deals with the fundamental principles of surgical medicine and anesthesia applicable to large animals. Emphasis is placed on the concepts of surgical asepsis, preoperative care, operative procedures, postoperative care, basic anesthetic procedures, and the logical diagnosis and resolution of surgical diseases.

LMED 0570. INTRODUCTION TO VETERINARY SURGERY. 2nd Semester. Lect. 2, Lab 3, 3 credits. This is an introductory course dealing primarily with principals of surgery as it relates to both large and small animal species. Emphasis is placed on aseptic techniques, surgical sundries, fluid and electrolyte therapy, shock, anesthesia, preoperative and postoperative care, as well as suture materials and techniques.

LMED 0651. LARGE ANIMAL MEDICINE II. 2nd Semester. Lect. 4, Lab 0, 4 credits. This course deals with the major infectious diseases of cattle, horses, swine, sheep, and goats found in the United States. Attention is given to foreign animal diseases that impact heavily on the livestock industry of this country. The historical and economic factors associated with the various infectious diseases are addressed. Emphasis is placed on the etiology, epizootiology, symptomatology, pathology, diagnosis, treatment, management, prevention, and public health relationships of infectious diseases. State, federal, and international factors associated with infectious diseases are discussed, and participants are provided with the information, steps, and procedures for becoming an accredited veterinarian.

LMED 0653. THERIOGENOLOGY AND HERD HEALTH. 2nd Semester. Lect. 4, Lab 3, 5 credits. This course deals with obstetrical anatomy, reproductive physiology, diseases associated with pregnancy and parturition, diagnoses and management, obstetrical operations, neonatal diseases, and the management of diseases and injuries associated with parturition (both large and small animals are included in the discussions). Emphasis is placed on diseases and conditions that produce infertility and sterility. Reproduction patterns, breeding soundness examinations, and herd health reproductive programs are considered. The laboratory sessions are designed to provide participants experience in diagnosing stages of pregnancy, and in developing skills and competency in executing obstetrical procedures (interdepartmental taught course).

LMED 0589. PROBLEM BASED MEDICINE II. 2nd Semester. Lab 3, 1 credit. This course utilizes clinical presentations and problem-solving skills by the students to gain an understanding of course material taught in the first three years of the professional curriculum. The rationale for therapeutic intervention and case management are also discussed. Students will work in groups and are responsible for gathering and presenting the information to the class.

LMED 0591. ETHICS, JURISPRUDENCE, AND PRACTICE MANAGEMENT. 1st Semester. Lect. 1, Lab 0, 1 credit. This course deals with the practical, theoretical, and ethical issues that impact on the veterinarian's relationship to animals, clients, associates, and members of the broader society. Emphasis is placed on communication skills, ethical behavior, human-animal interdependent relationship, and the philosophy of private veterinary practice.

LMED 0694. LARGE ANIMAL CLINICS I. 1st Semester. Lect. 0, Lab variable, 3 credits. In this laboratory course, participants are assigned to clinical rotations on ambulatory service and in the large animal hospital. They are afforded an opportunity to participate and gain practical experience in the art of physical examinations, diagnoses, prognoses, and surgical procedures applicable to large animals. Emphasis is placed on the use of the problem-solving medical record system, record documentation, and client interactions, and health care management. Active participation in the hospital's health care management program is a basic requirement.

LMED 0695. LARGE ANIMAL CLINICS II. 2nd Semester. Lect. 0, Lab variable, 3 credits. This laboratory course is a continuation of VM 694 Large Animal Clinics I. Participants are afforded an opportunity to gain additional practical experience in the art of physical examinations, diagnoses, prognoses, and surgical procedures applicable to large animals. They are assigned to clinical rotations in the large animal hospital and on ambulatory service. Active

participation in all phases of the hospital's health care management program is a basic requirement.

SMED 0391. INTRODUCTION TO VETERINARY MEDICINE. 1st Semester. Lect. 0, Lab 4, 2 credit. In this course, participants are introduced to veterinary medicine and the history of the Tuskegee University School of Veterinary Medicine. Basic academic reinforcement skills will be discussed. Emphasis is placed on the recognition of breeds (colors, markings, etc.), the restraint of animals, and the physical examination for both small and large animals.

SMED 0493. PHYSICAL DIAGNOSIS. 2nd Semester. Lect. 0, Lab 3, 1 credit. In this course, participants are introduced to the basic principles of clinical medicine. Emphasis is placed on the restraint of animals, the routes of drug administration, the problem-oriented medical record, as well as diagnostic procedures applicable to postmortem, clinical pathology, radiological, and microbiological examinations (interdepartmental taught course).

SMED 0571. DIAGNOSTIC IMAGING. 1st Semester. lect 3, Lab 0, 3 credits. This course deals with concepts and principles associated with production and interpretation of radiographs and sonographs of normal and pathological cases.

SMED 0572. SMALL ANIMAL MEDICINE/SURGERY I. 1st Semester. Lect. 5, Lab 0, 5 credits. This course deals with basic principles and current concepts in the diagnosis, medical and surgical treatment, and management of non-infectious diseases and related conditions of small animals.

SMED 0574. SMALL ANIMAL MEDICINE /SURGERY II. 2nd Semester. Lect. 5, Lab 0, 5 credits. This course deals with basic principles and current concepts in the diagnosis, treatment, and management of infectious and noninfectious diseases of small companion animal and exotic species. Emphasis is placed on the etiology, symptomatology, diagnosis, control, and public health relationships of infectious diseases, as well as the medical and surgical treatment of non infectious diseases.

SMED 0576. SMALL ANIMAL SURGERY I. 1st Semester. Lect. 0, Lab 4, 1 credit. This introductory course deals with the fundamental principles of surgical medicine and anesthesia in companion animals and exotic species. Emphasis is placed on the concepts of surgical asepsis, preoperative care, operative procedures, postoperative care, basic anesthetic procedures, and the logical diagnosis and resolution of surgical diseases.

SMED 0577. SMALL ANIMAL SURGERY II. 2nd Semester. Lect. 0, Lab 4, 1 credit. This course is a continuation of VM 575, and deals with the fundamental surgical principles of selected organ systems. Participants are provided exposure and basic experiences in performing the more common surgical procedures of small animals. When live animals are used, surgical procedures and post-operative care are conducted in accordance with guidelines stipulated by federal agencies and by the University.

SMED 0595. FUNDAMENTALS OF CLINICS I. 2nd Semester. Lect. 0, Lab 8, 2 labs of 3 h each and 1 lab of 2 h, 3 credits. In this interdepartmental laboratory course, third-year students

are assigned to clinical rotations in the large animal hospital, small animal hospital, and in the diagnostic laboratories. Participant work closely with 4th year professional students, and they are provided an opportunity to gain practical clinical and diagnostic experiences. (interdepartmental taught course).

SMED 0596. FUNDAMENTALS OF CLINICS II. 2nd Semester. Lect. 0, Lab 8, 2 labs of 3 h each and 1 lab of 2 h, 3 credits. In this interdepartmental laboratory course, third-year students are assigned to clinical rotations in the large animal hospital, small animal hospital, and in the diagnostic laboratories. Participant work closely with 4th year professional students, and they are provided an opportunity to gain practical clinical and diagnostic experiences. (interdepartmental taught course).

SMED 0690. BASIC CLINICS I. 1st Semester. Lect. 0, Lab variable, 3 credits. In this laboratory course, participants are assigned to clinical rotations in radiology service and the microbiology diagnostic laboratory. They are afforded an opportunity to participate and gain practical experience in the art of diagnostic microbiology and in the production of radiographs of various animal species. Emphasis is placed on the interpretation of microbiological and radiological results in a clinical setting.

SMED 0691. BASIC CLINICS II. 2nd Semester. Lect. 0, Lab variable, 3 credits. This laboratory course is a continuation of VM 690 Basic Clinics I. Participants are afforded an opportunity to gain additional practical experience in the art of diagnostic microbiology and in the production of radiographs. Emphasis is placed on the interpretation of microbiological and radiological results in a clinical setting.

SMED 0696. SMALL ANIMAL CLINICS I. 1st Semester. Lect. 0, Lab variable, 3 credits. In this laboratory course, participants are assigned to clinical rotations in the out-patient, medical, and surgery services of the small animal hospital. They are afforded an opportunity to participate and gain practical experience in the art of physical examinations, diagnoses, prognoses, and surgical procedures applicable to companion animals. Emphasis is placed on the use of the problem-solving medical record system, record keeping, and client relations and education. Active participation in all phases of the hospital's health care management program is a basic requirement.

SMED 0698. SMALL ANIMAL CLINICS II. 2nd Semester. Lect. 0, Lab variable, 3 credits. This laboratory course is a continuation of VM 696 Small Animal Clinics I. Participants are afforded an opportunity to gain additional practical experience in the art of physical examinations, diagnoses, prognoses, and surgical procedures applicable to companion animals. Participants are assigned to clinical rotations in the out-patient, medical, and surgery services. Active participation in all phases of the hospital's health care management program is a basic requirement.

SMED 0697. VETERINARY MEDICAL EXTERNSHIP. 2nd Semester. 6 credits. This course is designed for 4th year students enrolled in the professional veterinary medical program. Participants are assigned to their preferred areas of study to include clinical medicine, regulatory medicine, or medical research as available. Training will be carried out at University approved

off-campus sites and under the auspices of the Office of the Dean, College of Veterinary Medicine, Nursing and Allied Health. The Head of the Department of Clinical Sciences and the Associate Dean for Academic Affairs will be responsible for monitoring the program.

GRADUATE AND ELECTIVE COURSES

LMED 0656. ADVANCED LARGE ANIMAL MEDICINE. 2nd Semester. Lect. 2, lab 0, 2 credits. This course includes in-depth discussions of farm animal problems related to non-infectious diseases and conditions. A term paper is required.

LMED 0657. FOOD ANIMAL HEARD HEALTH AND PRODUCTION MEDICINE. 2nd Semester. Lect. 2, Lab 0, 2 credits. This course deals with modern and practical production methods and their interactions with disease management and control. Selected medical procedures and surgical operations commonly used in food animal practices are demonstrated. Field trips are sponsored to nearby production units to provide first hand information on the various types of management systems. Prerequisite: Approval of the course coordinator.

LMED 0658. FOREIGN ANIMAL DISEASES. 2nd Semester. Lect. 2, Lab 0, 2 credits. This course includes discussions on major foreign infectious and communicable diseases of animals that pose a threat to the nation's livestock industry. Prerequisite: Approval of the course coordinator.

LMED 0659. EQUINE LAMENESS. 1st Semester. Lec. 2, Lab 2, 3 credits. This course includes discussions on the causes, diagnosis, management, treatment, and correction of the more common lameness conditions in the horse. Laboratory sessions provide participants an opportunity to gain experience by performing surgical procedures, applying bandages and casts, and executing nerve blocks and intra-articular injections. Participants are responsible for managing their assigned patients and monitoring their daily progress.

LMED 0700. RESEARCH. 1st and 2nd Semesters, Summer. 1-6 credits This course deals with specific research thesis projects under the supervision of the graduate student's major professor. Hours are arranged.

LMED 0752. CONTINUOUS REGISTRATION. 1st and 2nd semesters, Summer. This course is designed for graduate students in the process of writing their thesis and/or preparing for examinations.

LMED 0754. CANDIDATE FOR DEGREE. 1st and 2nd Semesters, Summer. This course is designed for graduate students who have completed all requirements and will graduate during the semester of enrollment.

SMED 0600. GRADUATE RESEARCH SEMINAR I. 1st Semester and Summer. 1 credit. This course includes discussions on basic research methods, and a review of current research topics. Oral presentations are required.

SMED 0601. GRADUATE RESEARCH SEMINAR II. 2nd Semester and Summer. 1 credit. This course is a continuation of VM 600, and includes a review of current research topics. Oral presentations are required.

SMED 0676. CLINICAL INSTRUMENTATION. 1st Semester. Lect.1, Lab 2, 2 credits. This course is designed to give participants additional skills with clinical equipment and other instruments. Emphasis is placed on the identification of instruments and the interpretation of results that may be obtained through their use.

SMED 0674. PRACTICE MANAGEMENT. 2nd Semester. Lect. 2, Lab 0, 2 credits. This course is designed for students who plan to engage in the clinical practice of veterinary medicine. Emphasis is placed on the planning and management of a practice. Business methods, laws governing the profession, veterinarian-client relationships, malpractice and legal ramifications are discussed.

SMED 0675. EMERGENCY AND CRITICAL CARE MEDICINE. 1st Semester. Lect. 2, Lab 1, 3 credits. This course includes emergency medicine basics and methods of delivering critical care to small companion animals. A systematic approach is used to recognize, diagnose, and treatment common emergency conditions. Prerequisites: SMED 0574 and SMED 0576.

SMED 0677. EXOTIC PET MEDICINE. 2nd Semester. Lect. 2, Lab 0, 2 credits. This course includes exotic pet medicine basics and methods of delivering care to spiders, reptiles, birds, small mammals, and wildlife. Emphasis is placed on the recognition, diagnosis, and primary treatment of conditions most often encountered in a pet practice. Prerequisites: SMED 0574 and SMED 0576.

SMED 0678. SMALL ANIMAL DENTISTRY. 2nd Semester. Lect. 1, Lab 2, 2 credits. This course includes the basics of dental anatomy and methods of instituting and marketing dental services in a small animal practice. Emphasis is placed on the periodontal, exodontal, endodontal and orthodontal conditions most often encountered in a pet practice. Pathophysiology, diagnosis, and management techniques are discussed. Prerequisites: SMED 0574 and SMED 0576.

SMED 0679. ADVANCED SMALL ANIMAL REPRODUCTION. 2nd Semester. Lect. 2, Lab 3, 4 credits. This course includes classroom discussions and laboratory exercises dealing with the causes, diagnosis and treatment of small animal reproductive problems. Kennel management is emphasized.

SMED 0680. SPECIAL PROBLEMS IN MEDICINE AND/OR SURGERY. 2nd Semester. Lect. 0, Lab.2-6, 1-3 credits. Students may pursue projects of interest in small animal medicine or surgery individually or in small groups. Available areas include soft tissue/orthopedic surgery, dermatology, endocrine diseases, cardiology, and advanced diagnostic techniques. Participants are expected to maintain detailed records on procedures used and results obtained.

SMED 0682. ADVANCED SMALL ANIMAL SURGERY. 1st and 2nd Semesters. Lect. 2, Lab 3, 3 credits. This course provides participants an opportunity to gain additional skills in

advanced orthopedic and soft tissues surgical techniques. Participants are expected to perform surgical techniques as stipulated, write surgical reports, provide postoperative care, and participate in discussion sessions.

SMED 0683. ANESTHESIOLOGY AND INTENSIVE CARE. 2nd Semester. Lect. 2, Lab 0, 2 credits. This course deals with the physiological and clinical aspects of regional and general anesthesia. Emphasis is placed on pre-anesthetic medication, choice of anesthesia, equipment, techniques, cardiopulmonary resuscitation, and shock management.

SMED 0684. CLINICAL CARDIOLOGY. 1st Semester. Lect. 1, Lab 2, 2 credits. This course deals with the recognition and management of cardiovascular diseases. Participants are expected to perform basic cardiovascular examinations; special projects are assigned. Course evaluation is based on the proper diagnosis and interpretation of test results, completion of the assigned project, and submission of a written report.

SMED 0686. SPECIAL PROBLEMS IN DIAGNOSTIC IMAGING. 1st and 2nd Semesters. Lect. 0, Lab 4, 2 credits. This course provides participants an opportunity to gain additional knowledge and experience in diagnostic imaging techniques and interpretation. Students may pursue imaging topics/projects of special interest. Prerequisite: VM 571 Radiology.

SMED 0699. MEDICIAL AND DIAGNOSTIC ENHANCEMENT. 1st and 2nd Semesters, Summer. Lect. 0, Lab variable, 3-12 credits. This course is designed for veterinary graduates enrolled in the School's non-degree granting program of study. Participants are assigned to clinical duties in the large animal hospital, small animal hospital, and the diagnostic laboratories. Emphasis is placed on practical experiences in pertinent phases of large animal medicine and surgery, small animal medicine and surgery, and in the diagnostic aspects of medicine (interdepartmental taught course). Prerequisite: DVM degree or its equivalent, and approval of the course coordinator.

DEPARTMENT OF NURSING

History

Tuskegee Institute Training School of Nurses was registered with the State Board of Nursing in Alabama in September 1892 under the auspices of the John A. Andrew Memorial Hospital to give instruction to young men and women of color who desired to learn the art of caring for the sick. The increasing demand for trained nurses in the South necessitated the establishment of a regular three-year diploma program for nurses at Tuskegee Institute in 1908, thereby enabling curricular courses offered to carry Institute course designations and credit

The Alabama State Board of Examiners in its report dated May 19, 1947, included commendation on the progress of the School of Nursing. In 1948, the School began its baccalaureate program leading to the Bachelor of Science degree in Nursing. The program holds the distinction of being the first Baccalaureate program in the State of Alabama. The nursing program also holds the distinction of being one of the oldest baccalaureate programs at a historically Black institution in continuous operation in the nation today. The three-year diploma program was subsequently phased out, and the last student graduated in 1953. In the Fall of 1996, the School of Nursing and Allied Health and the School of Veterinary Medicine were

joined to form the College of Veterinary Medicine, Nursing and Allied Health, one of five (5) Colleges within the University.

Mission/Purpose Statement

The purposes of the baccalaureate program in nursing are to provide: educational preparation for the practice of professional nursing in a variety of settings; and a basis for graduate study and lifelong learning.

The philosophical tenets of the Department of Nursing have grown out of those that pervade the University and College which are to: develop high-order intellectual and moral qualities among students, and stress the connection between education and the leadership Americans need for highly trained leaders in general, especially for the workforce of the 21st Century and beyond. A major outcome we seek is to prepare them to assume effective professional and leadership roles in society and to become productive citizens in the national and world community.

Accreditation

The Nursing program is accredited by the National League for Nursing Accrediting Commission (NLNAC), 3343 Peachtree Road NE, Suite 850, Atlanta, GA 30326, Phone: (404) 975-5000. The program is approved by the Alabama Board of Nursing, RSA Plaza, Suite 250, 770 Washington Avenue, Montgomery, AL 36130, Phone: (334) 742-4060.

Degree Offered

The Department of Nursing offers a Bachelor of Science Degree in Nursing (BSN) built upon a foundation of science and liberal education which prepares students from diverse geographical, cultural, educational, and socioeconomic backgrounds as professional nurses for leadership roles and graduate study in nursing. The graduate is prepared to utilize theory and evidenced based knowledge in the provision of care of individual, family, group, communities, and populations in a global society with flexibility to adapt to the changing nature of health care and health care roles.

Learning Outcomes

To achieve program purposes, the graduate will meet the following **terminal program outcomes:**

- Synthesize facts, principles and concepts from the social sciences, natural sciences, humanities, information technology and nursing to make critical decisions in the practice of professional nursing.
- Demonstrate safe performance of basic psychomotor skills and appropriate technology in providing nursing care to individuals, families, groups, communities, and populations across the lifespan.

  Utilize essential nursing competencies, critical thinking, therapeutic communication, and appropriate technology to make independent and/or collaborative nursing decisions in the practice of professional nursing with individuals, families, groups, communities, and populations across the life span.

- Utilize principles of health promotion, disease prevention, and illness and disease management with individuals, families, groups, communities, and populations.

- Collaborate with members of multidisciplinary health care teams in meeting the needs of individuals, families, groups, communities, and populations across the life span.
- Utilize theories and principles of nursing, leadership and management in the practice of professional nursing in a variety of settings.
- Promote evidence-based practice of professional nursing through interpretation, utilization and participation in research.
- Accept responsibility and accountability for life long, self-directed learning and personal and professional growth in nursing practice.
- Evaluate the impact of cultural, spiritual, ethical, legal, political and technological advancement in the practice of professional nursing.

ADMISSION, RETENTION AND PROGRESSION

Consistent with the mission and policies of the University, the Department of Nursing is committed to a program, which allows the admission, retention and progression of any student capable of achieving the required standards. Applications for admission are welcomed from men and women who have maturity, high and consistent motivation to learn, and the potential for success in the program of studies leading to the Bachelor of Science in Nursing degree.

Notice to All Applicants

All applicants must be aware that a State Board of Nursing has the right to disallow anyone to sit for the licensing examination and/or to refuse to grant a registered nurse license to any individual regardless of educational credentials, under circumstances of: (1) falsification of application for licensure; (2) conviction of a felony or crime of moral turpitude; and, (3) other moral and legal violations specified in the state's law. Stipulations may vary from state to state.

ADMISSION

Pre-nursing Admission Requirements

Scholastic and other criteria for admission to Department of Nursing, as a pre-nursing major, are:

1. Meets the general requirements for admission to the University
2. Graduate from high school with a cumulative grade point average (CGPA) of 3.00 or above on a 4.00 scale.
3. Score 1000 or above on the Scholastic Aptitude Test (SAT) or its equivalent on the American College Test (ACT) 21.
4. Complete in high school one (1) unit of biology and one (1) unit of chemistry. A grade of C or above must be earned in each of these courses.
5. Complete two (2) units of high school mathematics (one of the completed units must include algebra). A grade of C or above must be earned in each course.

Admission Requirements for Professional Phase

Admission to the University and to the pre-professional phase of nursing does not guarantee admission to the professional phase of the nursing curriculum. Students must apply for admission to the professional phase during their sophomore year and meet all admission requirements to be eligible for admission. Students requesting admission to the

professional phase must:

1. Complete an Application for the Professional Phase of Nursing. The application form can be obtained from the record clerk, in Room 201, Basil O'Connor Hall, or downloaded from:
   www.tuskegee.edu/academics/colleges/cvmnah/school_of_nursing_allied_health.aspx.
2. Satisfactorily complete all prerequisites (pre-nursing) course requirements.
3. Have earned CGPA of 3.00 or better on a 4.00 scale.
4. Achieve a satisfactory score of 80% on the Test of Essential Academic Skills (TEAS).
   Note: *Students are required to submit their TEAS scored to the Academic Affairs Committee by April 1, within the year of anticipated summer admission. The* Test of Essential Academic Skills *is distributed by Assessment Technologies Institute, Inc. (ATI). A study guide and information about locations of examination sites may be obtained from www.atitesting.com.*
5. Satisfactorily complete the Tuskegee University English Proficiency Examination requirement.
6. Satisfactorily complete the Tuskegee Orientation requirements.

Transfer Student Admission Requirements

Students who wish to enter the Department of Nursing from other colleges or universities must be eligible to re-enter the institution last attended and have a cumulative grade point average of 3.00 or above on a 4.00 scale***., ACT- 21, and SAT- 1000.***

Credits for comparable courses successfully completed with a grade of "C" or above may be applied towards fulfilling pre- nursing general education requirements. Nursing courses are not transferable, except those approved by Articulation Agreements.

Pre- nursing liberal arts credits may be earned by enrolling in courses at Tuskegee University. Courses may also be transferred from junior/senior colleges and universities or earned through CLEP examinations to meet liberal arts credit requirements. Major science courses must be retaken if they were taken more than 5 years prior to application to the professional phase of nursing **(CHEM 221/222/223/224, MBIO 208, ANPH 201/202, BIOL 111 or 112).**

Transfer Credit

Students may register and/or transfer course credits from another institution. Transfer credit is given only for courses approved by the Academic Affairs Committee and the Associate Dean of the School of Nursing and Allied Health. Transfer credit will be awarded on a course-by-course basis. Courses in which students earned "D" grades will not be considered for transfer credit. Credit toward graduation is given only for courses that have been approved for transfer by the Associate Dean. The maximum transfer credit allowed to meet degree requirements will not exceed 80 hours. Courses taken on a pass/fail basis will not be considered for transfer. **All transfer students must meet University requirements for Orientation, and the English Proficiency Examination, as outlined in the Tuskegee University Undergraduate Bulletin, and the Tuskegee University Academic Regulations and Policies for Undergraduates.**

Registration at another Institution

A student may register as a transient student at another institution for course credit **only with prior written approval** of the Associate Dean of the School of Nursing and Allied Health and the Dean of the College of Veterinary Medicine, Nursing and Allied Health. The student should complete a transient request form located in Basil O'Connor Hall, Room 201 and provide a written description of the course from the accredited institution in which he/she wishes to enroll. Transfer students with at least 18 semester hours of transfer credits will not be allowed to take additional hours at another institution. ***A student who earns a D or E grade in a required course at Tuskegee University must repeat it at Tuskegee University. Transfer credits will not be granted for repeated courses taken at another university if the student has earned a D or E grade in the course at Tuskegee University.***

PROGRESSION

Courses **essential to nursing** are in keeping with the philosophy, conceptual framework and objectives of the Department of Nursing and are required for progression to succeeding nursing courses. Eligibility for progression in the Nursing program depends on the following criteria:

1. Complete, with a minimum grade of "C", the following courses identified as **prerequisites to the professional phase of nursing.**

***Anatomy/Physiology 201& 202**
Art 101/Music 208
Biology 111 or 112
Chemistry 221 & 223
Psychology 270
English 101, 102, and Eng. (200-300 Level)
History 103/104 or 210/211
Psychology 377
***Microbiology 208**
Orientation 100/101
***Nutrition 111**
Philosophy 237/238
Physical Education (2 credits)
Chemistry 222 & 224
Computer Science 100/BUNSp 351
Psychology 306
Math 107
Reading 101 & 102
Sociology 240

***Note:** Major **science courses must be retaken** if they were **taken more than 5 years prior** to application to the professional phase of nursing.*

Academic performance will be evaluated by the Academic Affairs Committee. Students experiencing academic difficulties during, or at the end of any given semester, will be counseled by faculty advisors accordingly. The faculty reserves the right to make recommendations or stipulate conditions relative to remedial or other learning activities that must be adhered to by the student.

PLACEMENT

The Department of Nursing reserves the right to limit enrollment in designated nursing course offerings. Personal request for placement of courses are not permissible nor are requests for a given clinical rotation. When implementing the above, the Academic Affairs Committee (AAC)

will determine the number of students who are eligible and can be accommodated in any designated nursing course.

Students in irregular progression sequence due to illness, academic failure, repeating courses, etc. must have their eligibility and placement in the nursing curriculum determined by the Academic Affairs Committee. Students in irregular sequence are required to follow the curriculum in place at the time of their request for placement in the Nursing Program.

Students not registered for a nursing course during any semester, and are eligible to continue, must notify the (AAC) in writing of their intentions to return at least one (1) semester before the semester of intended enrollment.

RETENTION

Students in the Department of Nursing are expected to follow the curriculum as outlined and maintain a satisfactory level of performance each semester. For professional nursing courses, the passing grade on the A, B, C, D, E system is "C". To be retained in the Department of Nursing the student is expected to follow the following University and Department guidelines.

Pre- Nursing

1. Students whose cumulative grade point average is less than 2.0 at the end of the first semester or any subsequent semester will incur academic probation, suspension and/or dismissal as governed by Tuskegee University. Students should refer to Tuskegee University's Catalog and/or Academic Rules and Regulations.
2. Students on probation will be restricted to 12 credit hours if full-time and 7 credit hours if part-time.
3. Probationary students are required to establish and maintain weekly contact with their advisor in the Department of Nursing for advisement.
4. Probationary status will be removed when the student has achieved a cumulative average of 2.0. Probationary status must be removed within one semester or the student will incur suspension from the University.

Professional Level

1. Maintain a cumulative grade point average **(CGPA) of 2.00 or above at the end of each school year.**
2. Complete all nursing courses with a "C" grade or better. Students may repeat only one (1) nursing course in the curriculum. Students who fail one (1) nursing course will be placed on **PROBATION** for the remainder of enrollment in the nursing program.
3. Failure of <u>any</u> nursing course while on Probation will result in **DISMISSAL** from the nursing program**.**
4. Students who fail two (2) nursing courses in the same semester will result in DISMISSAL.
5. Students who failed the same course twice will be DISMISSED from the nursing program.
6. A student who has been dismissed from the nursing program may apply for readmission after one year from the semester of dismissal. **Readmission is not guaranteed**. Decision for readmission will be based on careful evaluation of prior academic performance, activities during the time of dismissal, and on space availability. Any student who is

readmitted must abide by recommendations dictated by the department (i.e. enrichment learning activities).

7. Any student previously dismissed and readmitted to the program and receives an "*E*" or "WF" grade in or fails (receives a "D" or "E" grade) one nursing course **will be dismissed without consideration for readmission.**

Registered Nurse Admission Requirements

Graduates of diploma and associate degree nursing programs who hold current licensure in the state of Alabama may complete requirements for the B.S.N. in the Department of Nursing. Tuskegee University Department of Nursing offers a flexible plan for registered nurses, which leads to the Bachelor of Science in Nursing Degree. The *plan's* flexibility of course scheduling and individualized clinical arrangements reflect the faculty's philosophy about independent learning opportunities for all students enrolled in the Department of Nursing. Credits for Pre-nursing courses may be earned by enrolling in courses at Tuskegee University, transferred from junior/senior colleges and universities, or earned through CLEP Examinations.

Program Requirements

1. *Meet the general requirements for admission to the University*
2. Current Alabama Registered Nurse Licensure
3. Receipt of official transcript(s) from previous college(s)/university attended
4. Successful completion of pre-nursing courses (transfer, CLEP, SAT/ACT)
5. Current CPR certificate (Adult & Child)
6. Evidence of a Physical Examination performed within the last one year.
7. Negative screen for drug and alcohol. Testing will be arranged by the Department of Nursing.
8. Evidence of current vaccinations. *(See Appendix D)*
9. Evidence of current liability insurance.
10. Evidence of a "clear" background check.

Graduates of nursing programs outside of the United States

Graduates of nursing programs outside the United States who holds current licensure in their respective countries should apply for and obtain licensure in the United States and the state of Alabama in order to be admitted as a Registered Nurse Student. *Graduates of nursing programs outside of the United States who do not hold current licensure in the United States will be admitted on the same basis as regular freshmen and will follow the program as outlined until licensure in the United States is obtained.*

Health Requirements

Due to the nature of the educational experiences in the Department of Nursing, the policy concerning health varies from that of the University. The expectations regarding health are as follows:

1. Satisfactory physical health is a requirement for admission to the Department of Nursing. All applicants must submit a Tuskegee University Medical Record Form prior to initial registration at the University. A student nurse Health Record is required to be submitted to

Room 201 in Basil O'Connor Hall by **June 1, annually**, prior to registering for Professional Phase courses (see Appendix **D** for Student Nurse Health Record Form).

2. In addition to the immunization data required on the student nurse Health Record, updated immunizations, chest x-rays, tuberculin test, throat cultures and other health examinations and/or measures may be necessary for the student's well being and for the safety of the clients. Such screening will be required each year while the student is enrolled in the Professional Phase. Before attending the first semester Professional Phase nursing courses, students must have completed at least two (2) Hepatitis B immunizations; however, before enrolling in the Spring of the junior year, students are required to have completed the series of Hepatitis B Immunizations (3 injections). All *other health requirements must be completed* before attending the Professional Phase courses.

Liability Insurance

Students enrolled in any clinical nursing course are required to purchase $1,000,000/$6,000,000 of liability insurance annually and submit proof of coverage to the course coordinator at the beginning of the course. Students can apply for *Alabama Student Nurse- RN* insurance online through Nursing Service Organization (NSO) @ http://www.NSO.com. Students will not be admitted to clinical practice without the necessary liability insurance. Proof of insurance should be submitted to Room 201 by **June 1, annually.**
Note: *The Department of Nursing does not assume responsibility for documents faxed into its office.*

GRADING SCALE:

The following is the grading scale for professional nursing courses:

A = 92 –100 ……..….4 grade point per credit hour
B = 83 – 91 ……..……3 grade point per credit hour
C = 74 – 82 ……..……...…….2 grade point per credit hour
D = 65 – 73 ……..……...…….1 grade point per credit hour
E = 0 -64 and below…….… ……...……..……0 grade to be assigned
Y = Unofficial drop/withdrawal…..……..……..……..0 grade point per credit hour
P = Pass…… ……..…….....… Not included in GPA computations
F = Fail ……..……Not included in GPA computations
I = Incomplete ……..…… …..……Not included in GPA computations

All student grades (clinical and theory) are computed and recorded at the second decimal place (calculation and division). Grades shall be rounded off to the whole at the end of semester when final grades are computed. Decimal numbers .5 and above are rounded up to the nearest whole number (e.g. 73.51 = 74). Decimal numbers below .5 are rounded down to the nearest whole number (e.g. 73.49 = 73).

Graduation Requirements

The Department of Nursing adheres to all University requirements and procedures for graduation. In addition, the student is recommended to receive the Bachelor of Science Degree in Nursing when the following conditions are met:

1. Satisfactory completion of all required courses and other requirements for the nursing curriculum.
2. Completion of the minimum number of credit hours required for the Bachelor of Science Degree in Nursing.
3. A minimum cumulative grade point average of 2.0 on a 4.0 scale.

TUSKEGEE UNIVERSITY
Department of Nursing
Nursing Curriculum
Curriculum Pattern (132 total hours)

FRESHMAN

FALL CREDITS		**SPRING CREDITS**	
English 101	3	English 102	3
CHEM 221/223	4	Chemistry 222/224	4
Physical Education	1	PSYC. 270 Intro to Psyc.	3
Orientation 100	1	Orientation 101	1
History 103/210	3	History 104/211	3
TOTAL	**16**	**TOTAL**	**17**

SOPHOMORE

FALL CREDITS		**SPRING CREDITS**	
Anatomy/Physiology 201	4	Anatomy/Physiology 202	4
Sociology 240	3	Biology 208 Microbiology	3
PSYC 377 Human Dev.	3	NUSC Nutrition 111	3
PHIL 237 /238	3	English 200-300 Level	3
Physical Education	1	Computer Science	3
TOTAL	**17**	**TOTAL**	**18**

SUMMER

*{*Enrichment Required}*

NURS 300	Medical Mathematics and Terminology	(3)
NURS 316	Cognitive and Clinical Skills Enrichment	(4)
TOTAL		**(7)**

JUNIOR

FALL CREDITS		**SPRING CREDITS**	
NURS 309 Foundations of Nursing	6	NURS 320 Adult Health Nursing I	6
NURS 314 Pharmacodynamics of Nursing	3	NURS 321 Psychiatric/Mental Health Nurs	5
NURS 311 Pathophysiology	3	NURS 406 Nursing Research	3
		NURS Issues in Professional Nursing	2
TOTAL	**12**	**TOTAL**	**16**

SUMMER

NURS 315 Gerontology Nursing	3
NURS 412 Nursing of Childbearing Families	5
TOTAL	**8**

SENIOR

FALL CREDITS		**SPRING CREDITS**	
NURS 405 Adult Health Nurs. II	6	NURS 411 Nursing Seminar	2
NURS 403 Guided Elective	3	NURS 419 Community Hlth. Nur.	5
NURS 418 Nursing of Children	5	NURS 420 Leadership, Mgt & Profession	7
TOTAL	**14**	**TOTAL**	**14**

Note: The total degree requirement hours equals 132 semester hours and does not include the 1st summer's enrichment. However, the total curriculum **requirement is 139 semester hours.*

RN to BSN Curriculum

Program Requirements

Current Registered Nurse Licensure in Alabama
Receipt of official transcript(s) from previous college(s)/university attended
Successful completion of Pre-Nursing Courses (transfer, CLEP, SAT/ACT)
Current CPR certificate (Adult & Child)
Document of a Physical Examination performed within the last one year.
Negative screen for drug and alcohol. Testing will be arranged by the Department of Nursing.
Evidence of Hepatitis B Vaccine (3 series)
Evidence of current liability insurance.

PRE-PROFESSIONAL COURSES

PREREQUISITE TO NURSING	**SEMESTER CREDITS**
Transfer Orientation	1
Microbiology	3
Nutrition	3
Introduction to Sociology	3
Introduction Psychology	3
Human Growth & Development	3
College Algebra & Trig.	4
General Biology 111/112	3
English 101, 102, 200/300 level	9
Chemistry I & II (both lecture & Lab)	8

Computer Science 100/BUSN 351	3
History	6
Anatomy & Physiology 201/202	8
Logic	3
Statistics	3
Physical Education I & II	2
Music/Art Appreciation	2
Total Credits	**65**

Upon successful completion of **NURS 400** {Theoretical Basis of Professional Nursing Practice} and **NURS 401**{Clinical Application of Professional Nursing Knowledge}, students are awarded 39 semester hours of validated nursing credits for the following courses.

NURS 309 (Foundations of Nursing, 6 hrs)
NURS 311 (Pathophysiology, 3 hrs)
NURS 314 (Pharmacology, 3 hrs)
NURS 320 (Adult Health I, 6 hrs)
NURS 321 (Psychiatry-Mental Health Nursing, 5 hrs)
NURS 405 (Adult Health II, 6 hrs)
NURS 412 (Pediatric Nursing, 5 hrs)
NURS 418 (Nursing of the Childbearing Families, 5 hrs)

Also, students are required to complete 30 semester hours to include:

NURS 315 (Gerontology, 3 hrs)
NURS 419 (Community Health Nursing, 5 hrs)
NURS 414 (Issues & Ethics in Nursing, 2 hrs)
NURS 420 **(**Leadership, Management and Professional Practice, 7 hrs)
NURS 403 (elective) Clinical Inquiry/Independent Study 3 hrs)
NURS 406 (Research, 3 hrs)

RN-BSN CURRICULUM PATTERN

OPTION I (3 Semesters) 30 hours

SUMMER

NURS 400 Theoretical Basis of Prof. Nursing Practice	{3}
NURS 401 Clinical Application of Prof. Nursing Practice	{4}
Total Semester Hours:	7 hours

FALL		SPRING	
NURS 406 Nursing Research	{3}	NURS 414 Issues & Ethics	{2}
NURS 419 Community Health	{5}	NURS 403 Elective	{3}

		NURS 315 Gerontology	{3}
		NURS 420Leadership, Mgt & Pro	{7}
Total Semester Hours:	11 hour	Total Semester Hours:	12hour

OPTION II (4 Semesters) 30 hours

SUMMER	FALL	SPRING	SUMMER
NURS 400 {3}	NURS 315 {3}	NURS 419 {5}	NURS 420 {7}
NURS 401 {4}	NURS 406 {3}	NURS 403 {3}	NUR 414 {2}
Total 7	**6**	**10**	**9**

COURSE DESCRIPTIONS

NURS 0300. MEDICAL MATHEMATICS AND TERMINOLOGY. Summer Semester. (Lecture 4; Lab. 6) 3 credits. This course emphasizes the basic knowledge and concepts of mathematics and medical terminology to generate a foundational level of competency essential to dosage calculations and safe medication administration. Learning activities include a comprehensive review of mathematical principles key to medication dosage calculations and administration by a variety of routes.

NURS 0316. COGNITIVE AND CLINICAL SKILLS ENRICHMENT. Summer Semester (Lecture 2. Lab. 12) 4 credits. An enrichment course designed to facilitate knowledge comprehension and clinical reasoning skills. Teaching-learning strategies to promote self-regulated learning will be utilized.

NURS 0309. FOUNDATIONS OF NURSING. Fall Semester. (Lecture 3; Lab. 9) 6 credits. This course introduces students to concepts that are basic to the practice of professional nursing. It emphasizes the nurse's role in assisting patients to meet basic human needs at various levels of the health continuum. The conceptual framework of the Department of Nursing and the roles of professional nursing as identified by the Department of Nursing faculty are introduced. Learning experiences in the skills laboratory and in clinical settings are integral parts of this course. Prerequisites: Admission to the Professional Phase of Nursing.

NURS 0311 PATHOPHYSIOLOGY. Fall Semester. (Lecture 3) 3credits. This course focuses on biological processes, which disrupt the normal physiological adaptive process. These altered physiological concepts form a basis for the utilization of scientific principles in the application of the nursing process. This course emphasizes the effects of altered physiology on body systems, their ineffective responses and the ultimate effect on the total organism. The student is assisted in identifying the nurse's role in implementing preventive and restorative measures in response to physiological alteration and treatment through the manipulation of the environment as part of concept of cause and effect. Prerequisites: ANPH 201& ANPH 202; Admission to the Professional Phase of Nursing.

NURS 0314. PHARMACODYNAMICS OF NURSING. Fall Semester. (Lecture 3) 3 credits. This course introduces the student to the nursing role in drug management of patient across the lifespan and across the spectrum of health and illness. The focus is on drug prototypes and classifications from major drug categories, their actions, therapeutic relationship between pharmacologic knowledge and nursing practice. Emphasis is placed on individual responsibility, interdisciplinary collaboration, and patient safety. Prerequisites: Admission to the Professional Phase of Nursing.

NURS 0315. GERONTOLOGY NURSING. Summer Semester. (Lecture 2; Lab. 3) 3 credits. This course will focus on identifying patterns of successful aging, maintenance of productive, functional lifestyle and risk reduction strategies. Emphasis is placed on health promotion, chronicity and cultural aspects of aging. Additional focus is on end-of-life care and ethical dilemmas related to the aged population. Current theories of aging are examined. Prerequisites: NURS 0309, NURS 0311, NURS 314.

NURS 0320. ADULT HEALTH NURSING I (Chronic & Acute). Spring Semester. (Lecture 3; Lab. 12). 6 credits. A theory and clinical course designed to apply the nursing process in the implementation of nursing interventions with client and their families experiencing chronic and/or acute physiological alterations. The clinical component provides opportunities to develop skills and competencies in making critical decisions in restoring and/or maintaining health. Emphasis is placed on simple to complex nursing interventions Prerequisite: NURS 0309, NURS 0311, NURS 314.

NURS. 0321. PSYCHIATRIC/MENTAL HEALTH NURSING. Spring Semester. (Lecture 3; Lab.8). 5 credits. The focus of this course is on the nurse's role in promoting mental health and decreasing psychopathology through utilization of the nursing process with clients in various psychiatric settings. This course necessitates a focus on an analysis of self and others; role development; and application of psychosocial concepts and principles of therapeutic communication with clients experiencing alterations in mental health state. Prerequisite: NURS 0309, NURS 311, NURS 314.

NURS 0400. THEORETICAL BASIS OF PROFESSIONAL NURSING PRACTICE. Fall, Spring, Summer. (Lecture 3). 3 Credits. This course focuses on concepts, processes, roles, and skills necessary to facilitate the transition to baccalaureate nursing practice. The course explores the roles of the BSN nurse in the health care environment that includes: nurse educator, nurse leader, researcher, case manager, and the community health nurse. Prerequisite: Admission to RN-BSN Program. Co requisite: NURS 0401

NURS 0401. CLINICAL APPLICATIONS OF PROFESSIONAL NURSING PRACTICE. (Lab 16). 4 credits. A clinical course designed to synthesize previous knowledge and experience in the acquisition of the role of the professional nurse. Emphasis will be on theory based nursing practice and clinical decision-making. Prerequisite: Admission to RN-BSN Program. Co requisite: NURS 0400.

NURS 403A. GUIDED ELECTIVE IN ADULT HEALTH NURSING. (Lecture 3; and/or up to 9 hours Lab). 3 credits. Individualized didactic and/or clinical study of adults in selected

health care settings. This course is designed to facilitate an in-depth exploration of clients experiencing health alterations and the management of client care using a collaborative team approach. Enrollment in the course requires a learning contract developed in collaboration with the instructor. Study contract must be signed by the department head. Prerequisite: NURS 320.

NURS 403B. GUIDED ELECTIVE IN PSYCHIATRY/MENTAL HEALTH NURSING. (Lecture 3; and/or up to 9 hours Lab.). 3 credits. Individualized didactic and/or clinical course in which a special topic or project is designed to enable the student to apply and synthesize nursing knowledge related to care of psychiatric-mental health patient(s). The student and faculty will jointly develop the learning contract. The learning contract must be signed by the department head. Prerequisite: NURS 321.

NURS 403C. GUIDED ELECTIVE IN MATERNAL-NEWBORN NURSING. (Lecture 3; and/or up to 9 hours Lab). 3 credits. A didactic and/or clinical course that will allow students to pursue a topic more intensely that focuses on care of the childbearing families. Enables students to contract with a faculty member whose background, interests, and time will allow facilitation of in-depth study. The student and faculty will jointly develop the learning contract. Study contract must be signed by the department head. Prerequisite: NURS 412.

NURS 403D. GUIDED ELECTIVE IN PEDIATRIC NURSING. (Lecture 3; and/or up to 9 hours Lab). 3 credits. A didactic and/or clinical course in which a special topic or project designed to apply and synthesize nursing knowledge related to the care of children and families will be developed by the student under the supervision of a faculty member. The learning contract must be signed by the department head. Prerequisite: NURS 418.

NURS 403E. GUIDED ELECTIVE IN COMMUNITY HEALTH NURSING. (Lecture 3; and/or up to 9 hours Lab.) 3credits. A didactic and/or clinical course that will allow students to explore population-focused nursing practice and looks at the health issues facing our communities. Clinical component will focus on primary prevention, health promotion and cultural competence within the holistic framework. The student and faculty will jointly develop the course objectives. Study contract must be signed by the department head. Prerequisite: NURS 419.

NURS 403H. HONORS INDEPENDENT STUDY. Research/Clinical (Lecture 3; and/or up to 9 hours Lab). 3 credits. An opportunity for honor students to benefit from scholarly enrichment experiences. Emphasis will be on the development of a clinical problem and methodology to enhance the practice of professional nursing or an exploration of political factors impacting change and policy making in health care delivery. The research project must be signed by the department head. . Prerequisite: GPA of $\geq$ 3.0 in Nursing Courses and NURS 406.

NURS 0405. ADULT HEALTH NURSING II (Acute & Critically Ill). Fall Semester. (Lecture 3; Lab. 12). 6 credits. A theory and clinical course designed to apply the nursing process in the implementation of nursing interventions with clients and their families experiencing complex and/or multi-systems alterations. The clinical component emphasizes the application of the nursing process in the restoration of wellness in an acute/critical care environment. Prerequisite: NURS 320

NURS 0406. NURSING RESEARCH. Spring Semester (Lecture 3). 3 credits. This course introduces students to quantitative and qualitative research concepts, methodology, and techniques. Emphasis is placed on scientific approach, preliminary steps in research design, measurement and data collection, analysis of data, and critique of research report. Students are required to write a proposal. Relationship between research and the practice of professional nursing is emphasized. Prerequisites: NURS 320, NURS 321.

NURS 0411. NURSING SEMINAR. Spring Semester (Lecture 2) 2 Credits. This course focuses on synthesis of theories, concepts, and practices taught throughout the curriculum. Emphasis is placed on assessment of the student's ability to solve problems through critical analysis and the ability to demonstrate clinical competence. Prerequisites: NURS 321, NURS 405, NURS 412, NURS 414, NURS 418.

NURS 0412. NURSING OF THE CHILDBEARING FAMILY. Summer Semester (Lecture 6; Lab. 16). 5 Credits. Study of women's health across the lifespan with an emphasis on maternity/newborn care. Employs a holistic approach to health promotion and intervention. It provides opportunity for students to utilize the nursing process and critical thinking skills in the provision of care to women and their families. Includes clinical learning experiences in a variety of settings. Prerequisite: NURS 309, NURS 314.

NURS 0414. ISSUES IN PROFESSIONAL NURSING. (Lecture 2). 2 Credits. This course provides an opportunity for the student to investigate in depth the issues and trends affecting the practice of professional nursing. Prerequisites: NURS 320, NURS 321.

NURS 0418. PEDIATRIC NURSING. (Lecture 3; Lab 8) 5 Credits Fall Semester. This course offers the student the opportunity to develop critical thinking skills for the care of children and families in various health care settings. It includes information from current literature, research, and practice pertinent to growth and development, psychosocial, cultural, and physical needs of children with emphasis focused on health promotion, heath maintenance, and health restoration. Specific nursing and developmental theories related to the care of children and families are explored. Prerequisite: NURS 309, NURS 314.

NURS 0419. COMMUNITY HEALTH NURSING. Spring Semester (Lecture 3; Lab. 8). 5 Credits. This course is designed to incorporate primary, secondary, and tertiary interventions in the promotion of a healthy community. Emphasis will be on vulnerable and/or at risk population aggregates and groups. Clinical learning opportunities will focus on the application of the nursing process in delivering health services in partnership with community health agencies. Prerequisites: NURS 321, NURS 405, NURS 412, NURS 418. *(NURS 400 & 401 for RN-BSN only)*

NURS 0420. LEADERSHIP, MANAGEMENT & PROFESSIONAL PRACTICE. Spring Semester (Lecture 3; Lab 28). 7 Credits. This course focuses on the analysis of selected leadership and management theories in a variety of health care settings**.** Organizational structure and trends and issues in health care delivery will be emphasized. The clinical component will focus on the application of selected theories and models on management and

leadership roles relative to client care, evaluation of professional nursing practice and ethical/legal issues in a continuously changing health care environment. Prerequisites: NURS 321, NURS 405, NURS 412, NURS 418. *(NURS 400 & 401 for RN-BSN only)*

DEPARTMENT OF ALLIED HEALTH SCIENCES

The Department of Allied Health Sciences offers professional programs in Clinical Laboratory Sciences and Occupational Therapy. Both programs are housed on the second floor of the 1971 building of The John A. Kenney Hall (Bioethics Building). The building provides classrooms, faculty offices and laboratories for both programs. A computer lab is also available for Allied Health students.

In Clinical Laboratory Sciences (formerly Medical Technology), a Bachelor of Science degree is offered at the completion of academic requirements and the graduate is eligible to take a State Board Examination for license (see the section on Clinical Laboratory Sciences for more information). The Occupational Therapy program offers a 5 year, entry-level Master of Science degree after completion of academic requirements. The occupational therapy graduate must successfully complete 6 months of full time field experiences (level II fieldwork) in an occupational therapy program within 24 months of graduation. Completion of fieldwork is required before a graduate is eligible to sit for a national certification examination. *A felony conviction may affect a graduate's ability to sit for the certification exam or attain a state license to practice.*

MASTER OF SCIENCE DEGREE IN OCCUPATIONAL THERAPY

History

The Occupational Therapy Program at Tuskegee University was established in 1978 with the first class graduating in 1980. Tuskegee University houses the second oldest professional program in occupational therapy in the State of Alabama and the second oldest program at a historically black college or university.

The program received initial accreditation on January 11, 1980 and has maintained continuous accreditation, first with the Committee on Allied Health Education and Accreditation of the American Medical Association (CAHEA) and beginning in 1998 with the Accreditation Council for Occupational Therapy Education (ACOTE).

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The program received initial accreditation on January 11, 1980 and has maintained continuous accreditation, first with the Committee on Allied Health Education and Accreditation of the American Medical Association (CAHEA) and beginning in 1998 with the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA).

For more information about the program's current accreditation status and the Accreditation Council for Occupational Therapy Education please contact:

American Occupational Therapy Association (AOTA)
P.O. Box 31220
Bethesda, MD 20824-1220
301-652-2682
FAX 301-652-7711
Website: www.acoteonline.org

Graduates of the Program will be able to sit for the national certification examination for the occupational therapist administered by the:

National Board for Certification in Occupational Therapy (NBCOT)
12 S Summitt Avenue, Suite 100
Gaithersburg, MD 20877-4150
Tel:(301) 990-7979
Fax: (301) 869-8492

Occupational Therapy

Occupational Therapy is a health/rehabilitation profession whose practitioners work in a wide variety of settings including acute care hospitals, rehabilitation centers, psychiatric hospitals, community mental health facilities, schools and nursing homes, to a name a few. This profession contributes to the physical and emotional independence; and wellbeing of an individual or group of people through the selections of occupations or activities from everyday life that have meaning and purpose to the individual. This enables the individual to gain, regain, enhance or prevent loss of habits, skills, tasks, routines or roles that the individual has performed in the past, or is learning to perform in order to participate fully as a contributing member of his or her community or personal environment. Occupational therapists provide services and programs for people of all ages who have physical, emotion, social, or developmental problems. Occupational therapy involves finding the right occupations or activities, designing the right environment, or creating the right opportunities for experiences that lead towards health, independence of function and the prevention of dysfunction.

Vision of the Occupational Therapy Program

It is the vision of the Occupational Therapy Program that graduates of Tuskegee University will enhance the quality of life, by improving the occupational performance status of individuals within our society. Our graduates will provide quality services for people from diverse communities and enable them to achieve life satisfaction through meaningful occupations.

Mission of the Occupational Therapy Program

The mission of the Occupational Therapy Program is to provide an academic environment for individuals who are committed to the enrichment of people's lives through the tenets of occupational therapy. The program will provide educational experiences that will nurture creativity, intellectual curiosity, and promote the spirit of active, independent, and self-directed learning through dynamic interactions in the classroom and community service. The program uses the unique historical context of Tuskegee University to develop a deep sense of ethical conduct and community service in a rural community as a role model for students to become productive leaders in national and global communities. Using the foundation of occupational performance and productive behaviors across the lifespan, faculty members will assist students in learning the science and art of balancing technical skills and theory-based knowledge with all individuals while being respectful of their unique socio-cultural background.

Philosophy of Education

(Revised 5/30/13)

Our philosophy is based on the premise that humans are complex, active, spiritual beings who use occupations to evolve, change and adapt to a constantly changing internal and external environment. *Each person is viewed as having basic worth and dignity and the right to participate in meaningful occupation*. As humans progress developmentally, their priorities in life will change as well as their occupational behavior. In order to enhance, sustain or improve their quality of life, humans will change their patterns of performance. *We base the education of each student on the philosophy that occupation is central and provides a purpose and meaning to life*. Biological, social, psychological, virtual and other environmental factors may disrupt the normal process of development at any time during the life cycle. Adaptation to change is facilitated by using meaningful occupation to facilitate growth, support survival, self-actualization, occupational balance and quality of living. We as occupational therapy educators believe that the use of occupations is powerful and is needed to assist the client in maximizing their adaptation to change within a personal and socially relevant context.

The occupational therapy profession is built on the core principles of occupation. Because these core principles are constantly changing and evolving as a consequence of new knowledge and emerging technologies, the education of future occupational therapists dictate that we prepare students to be life-long learners who utilize clinical reasoning based on evidence, active learning, critical inquiry, collaboration with others and personal self-reflection.

TUSKEGEE UNIVERSITY
COLLEGE OF VETERINARY MEDICINE, NURSING AND ALLIED HEALTH
OCCUPATIONAL THERAPY PROGRAM
MASTER OF SCIENCE CURRICULUM (3+2)
Undergraduate Curriculum Based On General Core (Pre-professional)
Revised 06/13/2013

FIRST YEAR

First Semester				**Second Semester**			
Course		**Title**	Credits	**Course**		**Title**	Credits
ENGL	0101	Composition	3	ENGL	0102	Composition	3
MATH	0107	College Alg &Trig I	4	HIST	0104	World Civilization II	3
BIOL	**0111 or 0112**	General BiologyI/II	3	PSYC	0270	Intro to Psych	3
				SOCI	0240	Intro Socio	3
HIST	0103	World Civilization I	3	OREN	0101	Indiv.Dev & Growth	1
OREN	0100	Indiv. Dev & Growth	1	PHED		Elective	1
PHED		Elective	1				
HLSC	0100	Student Success for Health Care Majors 1		HLSC 0101		Student Success for Health Care Majors 1	
Total			**16**	**Total**			**15**

SECOND YEAR

First Semester				**Second Semester**			
Course		**Title**	Credits	**Course**		**Title**	Credits
CHEM	0221	Gen. Chemistry	3	PHYS	0301	Elem. Physics I	3
CHEM	0223	Lab	1	PHYS	0303	Lab	1
ANPH	0201	Anat & Physio I	4	CSCI	0100	Intro Computer	3
ENGL	0201	Adv. Writing	3	PSYCH	0377	Human Dev.	3
POLS/BUSN		Elective in Business or Political Science	3	ANPH	0202	Anat & Physio II	4
				HLSC	0201	Sophomore Seminar II	1
+FPAR	0101	Art Appreciation or Music	2				
Total			**16**	**Total**			**15**

+ FPAR 0105 or FPAR 0110 may be substituted for FPAR 0101

THIRD YEAR

First Semester				**Second Semester**			
Course		**Title**	Credits	**Course**		**Title**	Credits
PSYCH	0567	Abnormal Psych	3	HLSC302L		Gross Anatomy Lab	2
HLSC	0303	Medical Vocabulary	2	OCTH	0315	Occupation, Community Health & Wellness	3
OCTH	0311	Foundations of Occupational	3				
OCTH	0312	Occ. Perf. & Media I	4	ENGL	0327	Public Speaking	3
OCTH	312L	Lab	1	PHIL		(Approval from Advisor)	3
HLSC	0209	Health Care Systems	2	PSYCH	0306	Psychological Statistics	3
Total			**15**	**Total**			**14**

The GRE must be taken prior to or during the 3rd year. Completion of the indicated courses with a grade of "C" or higher is a prerequisite for admission to the graduate phase curriculum. "D" grades are unacceptable. Overall CGPA must be 3.0 for eligibility for the graduate phase. This curriculum is subject to revision pending approval by Tuskegee University's administration, and the Provost for Academic Affairs.

TUSKEGEE UNIVERSITY
COLLEGE OF VETERINARY MEDICINE, NURSING AND ALLIED HEALTH
OCCUPATIONAL THERAPY PROGRAM
MASTER OF SCIENCE CURRICULUM (3+2)
Revised 06/13/2013

FOURTH YEAR

First Semester

Course		Title	Credits
HLSC	0521	Ethics & Interprofessional Health Care	3
OCTH	0516	Functional Kinesiology	3
OCTH	516L	Lab	1
HLSC	0512	Neuro Basis Rehabilitation	3
OCTH	0519	Community Serv. / Seminar I	2
OCTH	0501	Graduate Seminar I	1
Total			**13**

Second Semester

Course		Title	Credits
OCTH	0520	Community Serv./ Seminar II	2
OCTH	0518	Behavioral Health & OT Process	4
OCTH	0518L	Lab	1
OCTH	0517	Adult Physical Dys & OT Process	4
OCTH	0517L	Lab	1
OCTH	0510	Introduction to Research	3
OCTH	0502	Graduate Seminar II	1
Total			**16**

SUMMER SESSION

Course		Title	Credits
OCTH	0621	Organization & Adm.	3
Total			**6**

Course		Title	Credits
OCTH	0622	Research Project I	2
OCTH	0600	Graduate Seminar III	1

FIFTH YEAR

First Semester

Course		Title	Credits
OCTH	0617	Leadership & Prof. Role Dev.	3
OCTH	0610	Environmental Modifications	3
OCTH	0612	Pediatric Dys & OT Process	4
OCTH	612L	Lab	1
OCTH	0630	Fieldwork I & PBL Seminar III	2
OCTH	0624	Research Project II	2
OCTH	0601	Graduate Seminar IV	1
Total			**16**

Second Semester

Course		Title	Credits
OCTH	0614	Older Adults & OT Process	4
OCTH	0614L	Lab	1
OCTH	0618	Contemporary Practice in OT	3
OCTH	0618L	Lab	1
OCTH	0632	Capstone&Evidenced BasedPractice	3
OCTH	0631	Fieldwork I & PBL Seminar IV	2
Total			**14**

SUMMER SESSION

OCTH	0652	Level II Fieldwork (A)	1
OCTH	0752	Continuous Registration (as needed)	0
OCTH	0754	Candidate for degree	0

FALL SESSION

OCTH	0653	Level II Fieldwork II (B)	1
OCTH	0752	Continuous Registration (as needed)	0
OCTH	0754	Candidate for degree	0

- **No grade below "C" will be accepted for graduate credit. A graduate student must maintain a "B" (3.0) average in all work included in the program of study as outlined for the degree. No more than 6 semester hours of "C" grades are allowed.**

FIELDWORK (Level II)

Two (3 months) fieldwork rotations are required after didactics requirements have been met. Students must enroll for FWII (OCTH 652-A & OCTH 652-B) and schedule rotations within 24 months after graduation.

Candidacy for the Master of Science degree

Admission to the graduate program does not qualify a student for the degree. The request for admission to candidacy must be filed by the student after the completion of 36 graduate semester credit hours and in accordance with the dates published in the University Calendar. Refer to Tuskegee University's Graduate Programs Bulletin.

Non-Thesis (Research Project) & Exit Exam

This is a non-thesis Master's, but students must score a 450 (75%) on the NBCOT Practice Exam, and complete a research project in occupational therapy and an oral presentation as approved by the department.

*This curriculum is subject to revision pending approval by Tuskegee University's administration, and the Provost for Academic Affairs.

Revised 06/13/13

APPLICATION PROCEDURES

The Occupational Therapy Admissions Committee selects students for admission after they have met the general Tuskegee University requirements for admission to the Graduate Program. Tuskegee University offers a 3+2 program. For students beginning as freshmen, 3 years of undergraduate course work is required and 2 years of graduate work. Prior to the end of their third year, students must make application to the graduate phase of the program. Admission is not automatic. Applicants may start as a freshman or sophomore at Tuskegee University or come as a transfer student with a maximum of 80 hours of allowable, undergraduate transfer credit from an accredited college or university. Students transferring to the program with a Bachelor's degree will be exempt from the university's orientation, physical education, and English Proficiency Exam requirements.

Pre-Professional Program

All students must meet the following criteria to gain admission to the Master of Science program in occupational therapy. All pre-professional students must be admitted to the University through the Admissions Office. Admission to the pre-professional or undergraduate curriculum is designed to develop foundational knowledge necessary for entry to the professional or graduate phase of the program. Upon completion of 3 years in the pre-professional phase, students then apply for admission to the graduate/professional phase of the program. Admission to Tuskegee University as a pre-occupational therapy major does not include admission to the graduate or professional program. Students who apply to the program as incoming freshmen must have the following requirements:

- High School GPA: 3.0 on a 4.0 scale
- SAT: 1000 or Above
- ACT: 21 or Above

Transfer students without a degree applying to the Occupational Therapy Program must have the following requirements:

- Cumulative GPA 3.0 on a 4.0 scale
- SAT: 1000
- ACT: 21

Transfer students with a degree applying to the Occupational Therapy Program and not have the required prerequisites may apply to the program in the pre-professional phase and complete prerequisites. Students must also have the following requirements:

- Cumulative GPA 3.0 on a 4.0 scale
- Bachelors or higher degree in a related area

Pre-Professional Course Requirement:

English Composition I	**3**
English Composition II	**3**
Advance Writing	**3**
Public Speaking	**3**
College Algebra & Trigonometry	**4**
World Civilization	**3**
World Civilization II	**3**
General Biology	**3**
Individual Development I & II	**2**
Introduction to Computer Science	**3**
Physical Education (2 courses)	**2**
Elementary Physics I	**3**
Elementary Physic I Lab	**1**
Student Success for Health Science Majors *	**2**
Health Care Systems	**2**
Medical Vocabulary	**2**
Introduction t Psychology	**3**
Human Development	**3**
Abnormal Psychology	**3**
Statistics	**3**
Introduction to Sociology	**3**
Philosophy	**3**
General Chemistry	**3**
General Chemistry Lab	**1**
Anatomy & Physiology I	**4**
Anatomy & Physiology II	**4**
Gross Anatomy Lab	**2**
Art or Music Appreciation	**2**
Political Science/Business Elective	**3**
Foundations of Occupational Therapy	**3**

***Transfer students with Bachelors or higher degree are exempt from these courses.**
-No grade below "C" will be accepted for a graduate credit. Overall CGPA of 3.0 on a 4.0 scale.

The Professional Program

Applications for the professional or graduate program must be requested from the Occupational Therapy Program. To obtain application forms, prospective students should write to:

Tuskegee University
Occupational Therapy Program Director
School of Nursing and Allied Health
John A. Kenney Hall, Room 71-266
Tuskegee, AL 36088

New students and transfer students should also apply for admission to Tuskegee University. An application may be obtained on-line at www.tuskegee.edu or from:

Tuskegee University
Admissions Office
Margaret Murray Washington Hall
Tuskegee, AL 36088

Transfer Students

Students who enter Tuskegee University from other colleges and universities with or without a bachelor's degree must:

- Successfully complete prerequisite courses with a cumulative grade point average of 3.0 or higher on a 4.0 scale (a "B "or better in pre-professional courses).
- Submit an official transcript from all colleges and universities attended. Transcripts should be sent to the above address. Each transcript should bear the signature of the registrar, the seal of the granting institution, the years of attendance, courses taken, grades received, and the degree, diploma, or certificate conferred (if applicable). *These transfer credits cannot exceed 80 credit hours*. Occupational therapy professional courses taken at other institutions are not transferable. Courses with a grade lower than "C" and pass/fail courses are also not transferable.
- Be eligible to re-enter the last institution attended.
- Meet Tuskegee University's general education requirements for graduation including occupational therapy introductory courses offered in the third (3^{rd}) year of the pre-professional program.
- Complete all other application procedures as required below.

Other Application Procedures

1. A cumulative grade point average of 3.0 on all course work attempted is a pre-requisite for admission to the 4^{th} year or graduate phase. Students with a cumulative 2.7 grade average may be admitted as a conditional graduate student. If a student is accepted on a conditional basis, a minimum of nine hours of graduate course work must be completed during the first term of the graduate program with a minimum average of 3.0 for admission to full graduate status.
2. Demonstration of knowledge concerning yourself and the occupational therapy profession by submitting:
    a. An essay (2-3 paragraphs) detailing the reasons the applicant desires to become an occupational therapist (i.e. your philosophy, life goals, knowledge of the field, etc.).

    b. An autobiographical sketch of approximately 250 words(describe birth history, early life, family members, schools attended, family life and other events that shaped you as a person).
3. Documentation of a minimum of 40 hours of first hand observation or work experience related to the practice of occupational therapy. This experience must be substantiated in writing by a registered/licensed occupational therapist.

4. Three recommendations from persons acquainted with the applicant's ability to be successful in a graduate program. One recommendation must be completed by a community leader and two from members of the academic community. This information should be submitted on the required forms located in the admissions package.
5. A personal interview with the Occupational Therapy Admissions Committee and a minimum score of 70% on the interview (average of at least two evaluators). Applicants must interview on site in the department's designated areas unless prior approval has been obtained for another type or location of interview.
6. Submission of scores on the Graduate Record Examination (GRE) from the aptitude portions of the test (verbal and quantitative) of 156 and above is required prior to admission. Applicants doing pre-professional work at Tuskegee University will be required to report GRE scores during the third year of course work and prior to applying to the professional (or graduate) phase. Students transferring into the graduate phase of the program should submit GRE scores (not older than 5 years) as a part of their application materials.
7. Preference for admission will be given to applicants who have completed all prerequisite courses by the end of the summer session prior to their admission to the graduate program. The graduate program begins *only* in the fall semester of every year.
8. A criminal background check (CBC) is required for all applicants. A CBC must be completed before admission to the graduate program and prior to fieldwork placements. Applicants will be notified of the required information and fees associated with this service.
9. Applications for the graduate program should be submitted by January 15 of the year in which you plan to enter the program.
10. Additional standardized tests may be administered to all applicants as a part of the admissions process.

Acceptance Policy.

After applying to the occupational therapy program the student will be notified of their acceptance status. If the student is not presently enrolled at Tuskegee University, he or she will be asked to submit a non-refundable application fee to the university. **T**he Occupational Therapy Admissions Committee will consider several factors in making its decision for admission of a student. Criteria such as cumulative grade point average, prior experiences, recommendations, personal interviews, and GRE scores will be considered as part of the Committee's decision to accept a student for the graduate program of study.

Residence and Credit Hour Requirements.

The occupational therapy graduate program requires a student to be in residence at least two academic years as a regular graduate student and the satisfactory completion of 68 hours of graduate courses for credit to complete requirements for a professional master's degree in occupational therapy.

Admission to Candidacy.

Admission to the graduate program in occupational therapy does not automatically qualify a

student as a candidate for the master's degree. The request for admission to candidacy should be filed by the student with the assistance of the major professor after the completion of the 4th year of course work or thirty (36) semester hours of graduate credit and in accordance with the dates published in the University Calendar. To achieve candidacy, the student must:

1. Satisfy all requirements for matriculation as a graduate student.
2. Possess a Cumulative Grade Point Average (CGPA) of at least 3.00 (The grade point average is computed for all **graduate courses** taken while enrolled at the University–whether the courses are in the student's current curriculum or not.)
3. Submit the following information with 6 signed originals and 4 copies on the appropriate application form and through the major professor and College Dean to the Dean of Graduate Programs:
    - A complete list of all graduate courses (with grades) completed in residence at Tuskegee University.
    - A copy of the official transcript.
    - A list of courses that satisfies the course requirements for the degree.
    - Approval by the major professor of courses selected, and place of research project.
4. Present scores on the Aptitude Test of the Graduate Record Examination.
5. Satisfy any additional requirements which may be specified by the college, department or both.
6. Obtain approval of admission to candidacy by the College Dean and the Dean of Graduate Programs.

All applications for candidacy should follow the standard procedures as described in the Tuskegee University Graduate Handbook for Academic Regulations and Procedures except the *thesis* requirement.

Non-Thesis-Comprehensive Examination for the Master of Science Degree.

This program offers a non-thesis Master's degree. However, each candidate for the degree in occupational therapy must complete a detailed research project and pass a computerized, comprehensive examination in occupational therapy. In addition, an oral examination will be required by the Comprehensive Examination Committee. Students will be required to pass with a minimum score of 74% on the comprehensive examination in order to be eligible for graduation and Level II fieldwork.

Level II Fieldwork (Clinical Internship).

After graduation, the occupational therapy major is required to complete six (6) months of full-time fieldwork in occupational therapy within 24 months of graduation, before they are eligible to sit for the National Board for Certification in Occupational Therapy (NBCOT) examination. The student is responsible for providing his/her traveling and living expenses for fieldwork. Graduates must receive a passing score on the "Fieldwork Performance Evaluation" for Level II fieldwork in order to receive approval from the Program Director to take the NBCOT certification examination. *A felony conviction may affect a graduate's ability to sit for the certification exam or attain state licensure*.

Program Costs and Fees.

Fees for occupational therapy laboratory courses will vary and are charged per course at registration. The total for 5 semesters is approximately $ 600. Other professional program fees, in addition to tuition and living expenses, include books ($900); clinical uniforms, patches and name tags ($100); transportation to laboratory and pre-clinical sites ($150); transportation to level I fieldwork sites ($200); room and board for level I fieldwork ($500); transportation for level II ($200-500); room and board for level II fieldwork ($3,000); a criminal background check ($45); health and safety requirements [CPR , medical exam, TB screening] ($40); and professional fees ($100). All fees are estimated and are subject to change without notice due to current price and market fluctuations.

Retention in Program.*

1. The grading scale for all graduate level courses in occupational therapy graduate/professional curriculum is as follows:

Credit Courses:	Non-credit courses:
A=90-100	S= Satisfactory or P (Pass)
B=80-89	U= Unsatisfactory or F (Fail)
C=70-79	I= Incomplete
D=60-69	
F=50-59	

No grade below "C" will be accepted for graduate credit. However, grades on all courses carrying graduate credit will be used in determining the overall grade point average. (Please note that this includes PSYC 306). A graduate student (4^{th} and 5^{th} years) must maintain a "B" average (3.0) in all course work included in the program of study outlined for the degree, with no more than six semester hours of "C" grades. Undergraduates (1^{st}, 2^{nd} and 3^{rd} year students) must complete prerequisite courses with a grade of "C" or higher.

*** Graduate retention policies are regulated by Tuskegee University. See the Graduate Programs Bulletin (2008-2010) for reference and further details.**

2. Grades of "D" are not acceptable. If a student makes a "D" in any course work in the program of study, then the student's graduate status is forfeited. When a student's record falls below 3.0, probation becomes automatic. Notification by the Registrar's office to the Dean of Graduate Programs will designate the student as probationary and the College Dean will be informed immediately. The College Dean will then inform the student, the department chairperson, and the student's advisor.
3. The probationary student will have until the end of the next session in which they are enrolled, to improve the cumulative grade point average to 3.0 or above. If the cumulative grade point average does not equal or exceed 3.0 at the end of this session, the student's graduate status will be forfeited and the student will no longer be permitted to pursue a graduate degree at Tuskegee University.
4. A student whose cumulative grade point average falls below 3.0 after a previous probationary period shall forfeit graduate status, and will be dismissed from the program. The dismissed student will be allowed to withdraw from the current session in which he or

she is enrolled. Students, who have been dismissed from the Graduate program, may enroll as a non-degree student. However, credits earned in this category may not be subsequently applied toward a degree at Tuskegee University. In addition, the student will not be considered for readmission to any other Graduate Program at Tuskegee University.

5. **Student Ethical Standards** as printed in the Occupational Therapy Graduate Handbook are binding in academic as well as clinical settings. Students must adhere to all of these standards. These standards are guidelines for professional and ethical behavior expected of all students enrolled in occupational therapy courses. Students in violation of any of the ethical standards may be dismissed from the program. A copy of these standards will be made available to all students enrolled in the occupational therapy program and will be found in the Occupational Therapy Graduate Handbook.

After successful completion of (6) six months of full time fieldwork experience (field experiences must be completed within 24 months of graduation) in an occupational therapy program and passing the NBCOT exam, the individual will be an Occupational Therapist, Registered (OTR). Most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination.

A felony conviction may affect a graduate's ability to sit for the certification exam or attain state licensure.

COURSE DESCRIPTIONS

HLSC 100. Student Success for Health Science Majors. 1st Semester. Lect. 1, 1 credit
This course is designed to help new students reach their career goals in a health care profession. The emphasis is on teaching students basic principles for being a successful student, including setting goals, managing time, preventing stress, effective communication, and networking with others. This course also introduces students to their health care majors.

HLSC 0101. Student Success for Health Science Majors. 2nd Semester. Lect. 1, 1 credit
This course is a continuation of HLSC 100. It is also designed to help new students reach their career goals in a health care profession. The emphasis is on teaching students basic principles for being a successful student, including effective communication, test taking and improved study skills, and preparing successfully for one's career path. This course also introduces students to their health care major.

ANPH 0201/0202. ANATOMY & PHYSIOLOGY 1 and II. 1st and 2nd Semester. Lect. 3; Lab 3; 4 credits. These courses cover a two semester sequence in which human anatomy and physiology are studied using a body systems approach, with an emphasis on the interrelationships between form and function at the gross and microscopic levels of organization. Dissection, histological studies and physiological exercises are included in the laboratory. Pre-requisites for ANPH 0201 are: CHEM 221 and 223 or CHEM 223 and 224; BIOL 0111, BIOL 120 and 121 or BIOL 230 and 231. Pre-requisite for ANPH 0202 is: ANPH I.

HLSC 0209. HEALTH CARE SYSTEMS. 1st Semester. Lect. 2, 2 credits. This course provides an overview of the health care system in America. Emphasis is placed on understanding its organization and delivery. It includes topics related to the roles and education of various health care professionals, payment for services, regulatory and ethical issues.

HLSC 0302L. HUMAN GROSS ANATOMY LAB. 2nd Semester. Lab 4; 2 credits.
This course will provide an in depth study of the neuro-musculo-skeletal system utilizing human cadaver dissection and models. The pre-requisite for this lab is ANPH 0201; the co-requisite is ANPH 0202.This course is restricted to occupational therapy majors.

HLSC 0301. INDEPENDENT STUDY. 1st and 2nd Semester and Summer. 1-6 credits. This course is designed for students in Allied Health professional programs with freedom and flexibility to pursue topics of special interest. Research or projects are conducted under the guidance of selected faculty.

HLSC 0303. MEDICAL VOCABULARY. 1st and 2nd Semester. Lect. 2, 2 credits. This course familiarizes the student with terms used in health and medical settings. The course covers anatomic descriptive terms, combining forms, prefixes, suffixes, abbreviations and acronyms.

OCTH 311. Foundations in Occupational Science. 1st Semester. Lect. 3, 3 credits
This Course addresses the domain of occupational therapy as a profession; its history, concepts and theoretical framework that govern the use of skilled and purposeful occupations in the habilitation and rehabilitation of individuals experiencing physical and/or cognitive dysfunction. Self-awareness is explored in the development of ethical practice and professional roles with respect to culturally diverse communities and client populations. This course provides an analysis of the historical and philosophical base of occupational therapy and an introduction to selected frames of reference, which support the development of competent clinical reasoning and practice skills.

OCTH 0312/312L. Development, Adaptation and Media. 1st Semester. Lect. 3, 3 credits
A review of the roles, occupational tasks, models of occupation and developmental theories from infancy through old age; determinants of occupational performance including cultural influences; physical and social environment; physiological, sensory, neuromotor, cognitive, and psychological dimensions are reviewed.

OCTH 0315. Occupation, Community Health and Wellness. 2nd Semester. Lect. 3, 3 credits
This course examines appropriate home and community programming that include health literacy, advocacy, occupation as well as prevention, health maintenance, health promotion and safety to support performance in the client's natural environment and participation in all contexts relevant to the client. The role of sociocultural, socioeconomic, and diversity factors and lifestyle choices in contemporary society are emphasized. The course brings into focus global social issues and prevailing health and welfare needs of populations with or at risk for disabilities and chronic health conditions. Practical considerations that affect the health and wellness needs of those who are experiencing, or are risk for, social injustice, occupational deprivation, and disparity in the receipt of services are examined.

OCTH 0423. INDIVIDUAL STUDY IN OCCUPATIONAL SCIENCE. (Elective). Summer. 1-4 credits. This course is designed as an independent study for undergraduate students. Students are given the freedom and flexibility to pursue topics of special interest. Research or projects will be conducted under the guidance of selected faculty members. Consent of occupational therapy faculty is required.

OCTH 501 Graduate Seminar. 1st Semester. Lect. 1, 1 credit
This first course is the designed to provide study and test taking techniques in preparation for the certification examination.

OCTH 502. Graduate Seminar. 2nd Semester. Lect. 1, 1 credit
This second course is designed to provide study and test taking techniques in preparation for the certification examination.

OCTH 510. INTRODUCTION TO RESEARCH. 1st Semester. Lect. 3, 3 credits. This introductory course explores research methods and challenges students to develop skills, knowledge and attitudes necessary for critically reading, analyzing and explaining scientific literature related to health.

HLSC 0512. NEUROLOGICAL BASIS FOR REHABILITATION. 1st Semester. Lect. 2, 3 credits. This course explores the relationship between sensory input and motor output as one of the fundamental concepts in the neurosciences. Students are challenged to critically analyze the anatomical relationships and physiological principles intervening in this relationship. Students should be able to conceptualize this relationship in both function and dysfunction.

OCTH 0516. FUNCTIONAL KINESIOLOGY. 1st Semester. Lect. 3, 3 credits. This course is a study of the musculoskeletal system with special emphasis on body mechanics and the mechanical principles of human motion. Muscles that move the body are studied with particular emphasis on functional movement of the upper extremity. Prerequisites:

OCTH 516L. FUNCTIONAL KINESIOLOGY LAB. 1st Semester. Lab 2, 1 credit. This is a lab course taken concurrently with OCTH 0516. Labs include practice and demonstration of the ability to perform range of motion measurements with goniometer and test muscle strength through manual muscle testing. Prerequisites:

OCTH 517 OCTH 517L. Adult Physical Dysfunction & Occupational Therapy Process 2nd Semester. Lec 4, 4 credits, Lab 2, 1 credit
This course teaches the application of theories, principles and procedures in treatment activities which are used in occupational therapy programs for adults with physical disabilities. Study will emphasize clinical conditions commonly encountered in occupational therapy settings and include the use of a problem-based approach as part of the class.

OCTH 0518 OCTH 518L. Behavioral Health and Occupational Therapy. 2nd Semester. Lect. 3, 3 credit, 2 Lab, 1 credit
This course emphasizes the selection and application of appropriate assessments and evidenced based interventions in occupational therapy for the adult in a typical behavioral health or community based setting. In addition to the occupational therapy proves, a typical development

is analyzed and discussed relative to the mental health classification systems, occupational therapy approaches, frames of reference, and models of documentation. Principles of human communication, health promotion, group dynamics, social participation, clinical reasoning and the therapeutic use of self are also emphasized. This course it taken concurrently with OCTH 518L (Lab).

OCTH 0519. Community Service and Problem Based Learning (PBL) Seminar I. 1st Semester. Lect. 2, credit 2

This course introduces effective documentation skills and surveys treatment settings through clinical observation and structured participation in a variety of ongoing occupational therapy services in the community. Students are introduced to the Problem Based Learning (PBL) approach and are given the opportunity to observe and reflect on clinical practice. Collaboration with others, exploration of cultural competence and a commitment to professional ethics and community practice is encouraged.

OCTH 0520. Community Service and Problem Based Learning (PBL) Seminar II. 2nd Semester. Lect. 2, 2 credit

This course builds and refines the skills acquired in OCTH 0519. Through further exposure to clinical and community-based settings where clients' occupational performance can be assessed primarily through observations and interviews, students will make participatory observations and reflect on the role of occupational therapy in diverse settings. Using the PBL approach students will work within teams to enhance critical thinking and clinical reasoning while solving problems.

HLSC 0521 HLSC 03XX (TBA). Ethics and Interprofessional Healthcare. 1st Semester. Lect. 3, 3 credits

This course provides an overview of interprofessional ethics in a variety of healthcare settings. An important focus is on the interprofessional competencies needed to work effectively in collaborative teams to improve the quality of healthcare delivery. The model of Integrative bioethics developed at Tuskegee provides the conceptual framework for the course. Examples of topics to be included are applied professional ethics, principles of ethical decision making, research ethics, building a culture of respect research and healthcare partnerships, social justice, transforming systems, advocacy and health equity. This course provides an opportunity for students to deliberate with professionals and students from diverse healthcare fields using case studies from the disciplines and experiential learning approaches.

OCTH 601. Graduate Seminar. 1st Semester. Lect. 1, 1 credits

This course is designed to provide study and test taking techniques in preparation for the NBCOT certification examination. The course will include discussions and synthesis of clinical and academic experiences to facilitate transition from student to practitioner.

OCTH 610. Environmental Modifications & Assistive Technology. 1st Semester. Lec 3, 3 credit

Analysis of occupation as a therapeutic method including the adaptation of the person, task, environment and/or context to promote optimal health and occupational performance. Includes assessment, design and implementation of assistive technology.

OCTH 0612. OCTH 612L.Pediatric Dysfunction & Occupational Therapy Process. 1st Semester. Lect 4, credit 4, Lab 2, credit 1

This course emphasizes the selection and application of appropriate assessments and interventions in occupational therapy for the 0-21 client population. In addition to the occupational therapy proves, a typical development is analyzed and discussed. Occupational therapy approaches, frames of reference, models of documentation, interdisciplinary collaboration, client and family centered care across a variety of practice settings is also emphasized. This course is taken concurrently with OCTH 612L (Lab).

OCTH 0614. OCTH 0614L Older Adults. 2nd Semester. Lect. 4, credit 4, Lab 2, credit 1

This Course will cover the health care system and community support of wellness, occupational performance and quality of life as they relate to the needs of people over the age of 65. In addition, disease and disability prevention, environmental adaptation to facilitate continuing engagement in occupations, factors contributing to successful aging, and legislative and reimbursement issues as they apply to health care and therapy service delivery with the older adult will be addressed.

OCTH 0617. Leadership, and Professional Role Development in Occupational Therapy. 1st Semester. Lect. 3, 3 credits

Application of professional leadership processes including standards of practice and competencies; needs assessments and program development; outcome management and program evaluation; consultation, policy and advocacy for programs and clients; Includes professional development and best practice competencies across practice settings.

OCTH 619. Contemporary Practice in Occupational Therapy. 2nd Semester. Lect. 3, credit 3, Lab 2, credit 1

This course will cover advanced studies in contemporary settings, such as home health, school system and others, emphasizing regulatory guidelines, roles, and delivery of services within an intra and interdisciplinary delineation, equipment and accessibility considerations, documentation, client and caregiver centered care and consulting are included.

OCTH 0630. FIELDWORK I AND PROBLEM BASED LEARNING (PBL) SEMINAR III.

1st Semester. Lect 2, credit 2

1st Semester. Clinical hours 90-120. 2 credits. This course encourages the synthesis of skills learned in OCTH 0519 and OCTH 0520. The course provides 2-weeks of participation in ongoing programs that provide services to persons across the life span with physical or psychosocial dysfunction and or the well population. This experience allows students to focus on professional development, to acquire meaningful knowledge, skills and attitudes in preparation of becoming an occupational therapist. Students are expected to apply the PBL approach in the implementation of the occupational therapy process with particular emphasis on screening and evaluation. Opportunities to practice effective documentation skills are provided.

OCTH 0631. FIELDWORK I AND PROBLEM BASED LEARNING (PBL) SEMINAR IV.

2nd Semeste,r, Lec. 2, credit 2.

Clinical hours 90-120. 2 credits. Level I fieldwork experience is an opportunity for students to apply all skills learned in OCTH 0519, 0520, and 0630. This course provides further participation

in ongoing programs that provide services to persons with physical disabilities, developmental or psychosocial dysfunction. This experience allows students to focus on professional development, to acquire meaningful knowledge, skills and attitudes; and to integrate the PBL approach in the implementation of the occupational therapy process with particular emphasis on evaluation, treatment planning and treatment intervention and effective documentation.

OCTH 0632. Capstone and Evidence Based Practice in Occupational Therapy Lec 3, credit3. This seminar is designed as a summative course focusing on the integration of knowledge, application of theories and critical problem solving in occupational therapy. Use of self and applied reasoning will also be included. This is also the review and preparation course for comprehensive oral and written examinations.

OCTH 0652. FIELDWORK II. 1st and 2nd Semesters and Summer. 1 credits.
Students enroll in this continuous registration course while on their Level II fieldwork after graduation. OCTH 0632Capstone and Evidence Based Practice in Occupational Therapy
This seminar is designed as a summative course focusing on the integration of knowledge, application of theories and critical problem solving in occupational therapy. Use of self and applied reasoning will also be included. This is also the review and preparation course for comprehensive oral and written examinations.

THE INTEGRATIVE BIOSCIENCES (IBS) PHD PROGRAM

History

In 2005, the TU Board of Trustees approved the plans for the Integrative Biosciences PhD Program. Designed to develop scientists who were adept at thinking and working across research disciplines and familiar with research teams, the IBS program was launched in 2006 with 7 fellows. Currently more than 40 predoctoral fellows have matriculated to the IBS PhD Program, with 11 graduates as of May 2013 and 21 additional fellows to graduate over the next 2-4 years. Competition for admission is highly competitive and selective, with the number of successful applicants severely limited by available funding.

IBS PhD Program Structure

Fellows admitted to IBS receive research support for up to five years, with support being commiserate with reasonable progress and the availability of funds, which are determined by the conduct of annual reviews of IBS fellows. Entering students take a core curriculum which provides foundational understanding of molecular biology, biochemistry, research ethics, scientific communications, advanced concepts in integrative biosciences and bioinformatics.

Additionally, first-year students participate in 2-3 research rotations and attend a journal club series, a professional development series and a special seminar series designed to introduce the students to available areas of research at TU. Conceptually, the students enter IBS as free agents, able to choose any combination of research disciplines that exist at TU to tackle a research question from at least two perspectives.

During the second year, IBS fellows formally choose two research mentors to help them complete their dissertation research, take additional courses related to their fields of interest and complete their written and oral qualifying exams.

The written exam consists of a comprehensive examination of their composite core understanding. This is followed by the presentation of their dissertation proposal to the IBS Deans Council, the submission of an NIH-style grant proposal based on their proposed dissertation research and an oral examination of this proposal by their 4-6 member dissertation committee.

During their third year, IBS fellows intensify their dissertation research, complete any remaining courses, participate in mandatory supervised teaching and complete the requirements for admission to candidacy.

During their fourth and fifth years, IBS fellows complete their dissertation work and prepare to defend their research. They also present their work at national meetings, publish in peer-reviewed journals, pursue post-doctoral opportunities and graduate from the program. During any year, IBS fellows may complete the required one-semester internship, designed to provide them with a broader view of research opportunities, alternative research paradigms and career opportunities. IBS PhD students are also expected to maintain professional courtesy and the highest academic standards at all times.

IBS Program Administration

IBS Program leadership is provided by the IBS Deans Council, and the IBS Office. The IBS Deans Council, which consists of the Dean of the CAS, the Dean of the CAENS and the Dean of the CVMNAH, provides oversight for the program and is the final authority on matters regarding student matriculation, student continuation and student termination. The IBS Deans Council codifies IBS policies and procedures, secures stable funding for the IBS program, recruits faculty for the program and handles all student appeals. The IBS program is administered by the IBS Project Director and Associate Director.

The IBS Program Director is responsible for overall project management and funding. Additionally, the Director is responsible for the day -to-day issues affecting the program including the course offerings, course registration, stipend and tuition allowances, student adherence to IBS policies, IBS student recruitment, submission of grant proposals, grant administration, quality control of courses, student exams, mentoring, and performance. Moreover, the IBS Director interacts with students and faculty, secures collaborative agreements with various labs, research programs and institutional partners, and performs other duties.

The IBS Office employs support staff who are responsible for coordinating the selection and admission process, arranging meetings with students, committees and faculty, preparing and submitting check requests, tuition payments, coordinating travel arrangements and a host of other important activities.

THE INTEGRATIVE BIOSCIENCES (IBS) MS PROGRAM

In 2011, the IBS PhD Program created a Master of Integrative Bioscience degree program to accommodate students who, for any number of degrees, decide not to complete their dissertation work but who wish to earn a degree for the research and coursework they have taken already. The IBS MS degree requires only that a student complete the IBS core curriculum, some research, and pass the comprehensive written exam (Qualifying Exam I).

Additionally, students wishing to earn the IBS MS degree must also be admitted to candidacy, complete and defend their research and submit a complete and approved copy of their theses project document to the office of Graduate Studies and Research at TU. IBS MS students are also expected to maintain professional courtesy and the highest academic standards at all times.

CURRICULUM IN INTEGRATIVE BIOSCIENCES (PHD)

(60 hours)

Semester	**1st**	**2nd**	**Sem Com**
First Year	CR	CR	
*IBSC 601 Bioethics	3		
*IBSC 603 Biochemistry		4	
*IBSC 605 Mol. Bio. DNA		4	
*IBSC 610 IBS Seminar		0	
*IBSC 604 Mol. Bio. Proteins		4	
*IBSC 606 Mol. Bio. RNA		4	
*IBSC 611 Scientific Comm.		2	
*IBSC 640A Adv. Biosciences I		3	
*IBSC 640B Adv. Biosciences II		3	
** Biostatistics		4	
** BIOL 565 Bioinformatics	3		
**IBSC 700 IBS Special Prob.		1-4	
**IBSC 710 IBS Lit. Review		2-3	
**IBSC 752 IBS Cont. Reg.	0		
**IBSC 754 IBS Candidate	0		
***IBSC 800 Res. & Diss.		8-12	
*****Additional Courses		33 hours	

*Denotes a core class. All core classes are mandatory.

**Optional Suggested Courses

***IBSC 800 Research and Dissertation can be taken for 8-12 credit hours towards to the IBS PhD degree. Other 500-level research credits can also substitute.

*****Additional courses that are 500-level and above can be taken towards the 60 credit hour requirement for the IBS PhD degree. These courses should be discussed with the students IBS co-mentors prior to registration to ensure no course credits deficits. Up to 30 of these credits can be transferred from previous graduate courses taken at TU or another accredited college or university.

Other IBS PhD Program requirements include the following:

- Teaching requirement: All IBS Fellows must teach one course that is approved by their co-mentors

- Internship requirement: All IBS Fellows must complete one semester-long internship requirement as approved by their co-mentors.
- All IBS fellows must complete qualifying exams. The first qualifying exam is a comprehensive written exam that is given in December of the student's third year to all members of a student's entering class that have been enrolled full-time in the IBS program and that includes topics covered in the IBS Core Curriculum. The exam is graded pass/fail by the IBS core instructors. A student has 2 chances to pass qualifiers. If the student does not pass qualifiers after the 2nd try the student must be terminated form the IBS Program. The second Qualifying exam is given by the student's dissertation committee during the spring of the students' 3rd year. This exam is also graded pass/fail and each fellow has up to 2 chances to pass. Failure to pass on the second try will result in termination from the program.
- Submission of their dissertation proposal to the IBS Deans Council by the end of the summer of their 3rd year.
- Application to candidacy by the end of the summer of their 3rd year.
- Professional courtesy, excellent academic progress ("B" or better in all courses), and availability of funding are also requisite for successful progression through the IBS PhD Program.
- Approval of the completion of their dissertation research and dissertation document by the IBS Deans' Council.
- Successful defense of the dissertation research.

The IBS PhD Program requires all fellows to have at least 2 co-mentors to guide them through the completion of their dissertation research and all program components must be ultimately approved by the IBS Deans Council.

CURRICULUM IN INTEGRATIVE BIOSCIENCES (MS)

(35 hours)

Semester	**1st**	**2nd**	**Sem Com**
First Year	CR	CR	
*IBSC 601 Bioethics	3		
*IBSC 603 Biochemistry		4	
*IBSC 605 Mol. Bio. DNA		4	
*IBSC 610 IBS Seminar		0	
*IBSC 604 Mol. Bio. Proteins		4	
*IBSC 606 Mol. Bio. RNA		4	
*IBSC 611 Scientific Comm.		2	
*IBSC 640A Adv. Biosciences I		3	
*IBSC 640B Adv. Biosciences II		3	
** Biostatistics		4	
** BIOL 565 Bioinformatics	3		
**IBSC 700 IBS Special Prob.		1-4	
**IBSC 710 IBS Lit. Review		2-3	
**IBSC 752 IBS Cont. Reg.	0		

**IBSC 754 IBS Candidate 0

***IBSC 800 Res. & Diss. 1-12 1-12
*****Additional Courses 5-10 hours

*Denotes a core class. All core classes are mandatory.

**Optional Suggested Courses

***IBSC 800 Research and Dissertation can be taken for 8-12 credit hours towards to the IBS MS degree. Other 500-level research credits can also substitute.

*****Additional courses that are 500-level and above can be taken towards the 60 credit hour requirement for the IBS MS degree. These courses should be discussed with the students IBS co-mentors prior to registration to ensure no course credits deficits. Up to 30 of these credits can be transferred from previous graduate courses taken at TU or another accredited college or university.

Other IBS MS Program requirements include the following:

- All IBS MS fellows must complete qualifying exams. The qualifying exam is a comprehensive written exam that is given in December of the student's third year to all members of a student's entering class that have been enrolled full-time in the IBS program and that includes topics covered in the IBS Core Curriculum. The exam is graded pass/fail by the IBS core instructors. A student has 2 chances to pass qualifiers. If the student does not pass qualifiers after the 2nd try the student must be terminated form the IBS Program.
- Submission of their thesis proposal to the IBS Deans Council.
- Application to candidacy.
- Professional courtesy, excellent academic progress ("B" or better in all courses), and availability of funding are also requisite for successful progression through the IBS PhD Program.
- Approval of the completion of their thesis research and thesis document by the IBS Deans' Council.
- Successful defense of the thesis research.

The IBS MS Program requires all fellows to have at least 2 co-mentors to guide them through the completion of their thesis research and all program components must be ultimately approved by the IBS Deans Council.

IBS CORE CURRICULUM COURSE DESCRIPTIONS

IBSC 601. RESEARCH ETHICS IN BIOSCIENCE. 1st Semester Lec. 2 hours. 3 credits. This course is open only to graduate students. A special focus will be ethical problems in bioscience related to race/ethnicity and work of minority bioscientists. Instructors will primarily serve as learning guides. Extensive student preparation prior to class is essential. Students are expected to participate significantly in class discussion and conscientiously contribute to group

work. Independent student research will be required. There are no prerequisites.

IBSC 603. INTEGRATIVE BIOCHEMISTRY I. 1st Semester Lec/Lab 4 hours, 4 credit hours. This course is a graduate-level sequence in Biochemistry. The course covers the fundamentals of cell chemistry, cell structure and function, protein and nucleic acids. Prerequisites BIOL 360/CHEM 360 or equivalent.

IBSC 604. INTEGRATIVE BIOCHEMISTRY II. Proteins. 2nd Semester Lec/Lab 4 hours, 4 credit hours. This graduate-level sequence in biochemistry is a continuation of IBSC 603. The course covers topics in carbon flow throughout a living system, energy generation, cell cycle, Mendelian inheritance, and the molecular basis of genetics. Prerequisite: IBSC 603.

IBSC 605. INTEGRATIVE CELLULAR, MOLECULAR, ORGANISMIC, SYSTEM, POPULATIONAL, AND ECOLOGICAL BIOSCIENCE I. Nucleic Acids. 1st Semester, Lec/Lab 4 hours, 4 credit hours. This is an experientially-framed, project-based, ordered and integrative examination of molecular, cellular, organismic, developmental, populational and ecological phenomena-whose conceptual origins rest with the unitary linkage between the chemical, biological and geological cycles that support life on Earth. This course is only open to graduate students. Prerequisite: BIOL 250/BIOL 360/CHEM 360 or equivalent or admission to the IBS Ph.D. Program

IBSC 606. INTEGRATIVE MOLECULAR, CELLULAR, ORGANISMIC, SYSTEM, POPULATIONAL, AND ECOLOGICAL BIOSCIENCE II. RNA. 2nd Semester, Lec/Lab 4 hours, 4 credit hours. This graduate-level course is a continuation of IBSC 605, which is a molecular biology course that examines the links between the chemical, biological and geological cycles that support life on Earth. Prerequisite: IBSC 605.

IBSC 610. INTEGRATIVE BIOSCIENCES GRADUATE SEMINAR I. 1st Semester, Lec 1 hour, 0 credit hours. This graduate-level course is only open to Integrative Biosciences (IBS) Ph.D. Students. This course is designed to familiarize IBS students with research being conducted by IBS faculty, to facilitate the selection of co-mentors for dissertation projects. Prerequisite: Admission to the IBS Ph.D. Program.

IBSC 611. INTEGRATIVE BIOSCIENCES GRADUATE SEMINAR II. 2nd Semester, Lec 2 hours, 2 credit hours. IBSC 611 is a graduate level course opened to masters and doctoral degree students. This course is being revised. The course will cover advanced topics, concepts and research methodologies relevant to all areas of bioscience. Students will learn fundamental research methodologies that can be applied across all bioscience disciplines. Prerequisite: None.

IBSC 640-A. ADVANCED INTEGRATIVE BIOSCIENCES. 1st Semester, Lec 2 hours, 2 credit hours. IBSC 640 is a course restricted to students in the Integrative Biosciences Ph.D. Program . Problems at the advanced level will involve the integration of the following: biochemistry, physiology, soil sciences, pathobiology, clinical sciences, biomedical sciences, plant and soil sciences, risk assessment and analysis, epidemiology, computational sciences, social sciences, agricultural economics and natural resources, forest resources, environmental sciences, food and nutritional sciences, chemistry, veterinary sciences, animal and poultry sciences, biology. Prerequisite: Completion of 8 hours of 500 or 600 level Molecular Biology or instructor's

permission.

IBSC 640-B. ADVANCED INTEGRATIVE BIOSCIENCES. 1st Semester, Lec 2 hours, 2 credit hours. IBSC 640 is a course restricted to students in the Integrative Biosciences Ph.D. Program . Problems at the advanced level will involve the integration of the following: biochemistry, physiology, soil sciences, pathobiology, clinical sciences, biomedical sciences, plant and soil sciences, risk assessment and analysis, epidemiology, computational sciences, social sciences, agricultural economics and natural resources, forest resources, environmental sciences, food and nutritional sciences, chemistry, veterinary sciences, animal and poultry sciences, biology. Prerequisite: Completion of IBSC 640-A or instructor's permission.

IBSC 710. INTEGRATIVE BIOSCIENCE LITERATURE REVIEW. 1st, 2nd , Summer Semester, Directed-Study, 2-3 credit hours. IBSC 710 is a course restricted to students in the Integrative Biosciences Ph.D. Program . Research methods and critical review of current bioscience literature will be addressed in this course Prerequisite: Admission to the IBS Ph.D. Program.

IBSC 700. SPECIAL PROBLEMS IN INTEGRATIVE BIOSCIENCES. 1st, 2nd , Summer Semester, Lec/Lab 1-3 hours, 1-4 credit hours. IBSC 700 is a course restricted to students in the Integrative Biosciences Ph.D. Program . Problems at the advanced level may be selected from the following: biochemistry, physiology, soil sciences, pathobiology, clinical sciences, biomedical sciences, plant and soil sciences, risk assessment and analysis, epidemiology, computational sciences, social sciences, agricultural economics and natural resources, forest resources, environmental sciences, food and nutritional sciences, chemistry, veterinary sciences, animal and poultry sciences, biology. Prerequisite: Admission to the IBS Ph.D. Program.

IBSC 710. INTEGRATIVE BIOSCIENCE LITERATURE REVIEW. 1st, 2nd , Summer Semester, Directed-Study, 2-3 credit hours. IBSC 710 is a course restricted to students in the Integrative Biosciences Ph.D. Program . Research methods and critical review of current bioscience literature will be addressed in this course Prerequisite: Admission to the IBS Ph.D. Program.

IBSC 752. INTEGRATIVE BIOSCIENCE CONTINUOUS REGISTRATION. 1st, 2nd , Summer Semester, Directed Study/Lab 0 hours, 0 credit hours. IBSC 752 is a continues registration course restricted to students in the Integrative Biosciences Ph.D. Program. This course offers IBS Ph.D. Students the opportunity to participate in integrative research towards the completion of their dissertation degree. Prerequisites: Admission to the IBS Ph.D. Program and completion of all course requirements EXCEPT the defense of the dissertation.

IBSC 754. INTEGRATIVE BIOSCIENCES CANDIDATE FOR THE DEGREE ONLY. 1st, 2nd, Summer Semester 0 hours, 0 credit hours. IBSC 754 is a course restricted to students in the Integrative Biosciences Ph.D. Program who have completed the requirements for graduate degree including final oral or comprehensive examination, submission of dissertation and approval of dissertation by the office of graduate programs. This course offers IBS Ph.D. students the opportunity to be enrolled at Tuskegee University while waiting for the degree to be conferred and/or commencement exercises). Prerequisites: Admission to the IBS Ph.D. Program and completion of all degree requirements INCLUDING defense of the dissertation.

IBSC 800. RESEARCH AND DISSERTATION. 1st, 2nd , Summer Semester Lab 1-12 hours, 1-12 credit hours. IBSC 800 is a course restricted to students in the Integrative Biosciences Ph.D. Program who need to complete their dissertation projects. Students will conduct research on dissertation project under the direction of their major professors. Prerequisite: Admission to the IBS Ph.D. Program.