School of Graduate Studies and Research

The School of Graduate Studies and Research (SGSR) is one of the twelve major academic units of the University. The school has the principal responsibility of working in collaboration with the various schools, colleges and institutes to maintain, develop, coordinate, and monitor the policies and procedures that govern all graduate programs.

The Division of Graduate Studies was established in 1957 and was elevated to the School of Graduate Studies, Research and Continuing Education in 1987. Currently known as the School of Graduate Studies and Research, high priority is given to the development of sponsored research and the research interests of individual faculty members. Service provided to aid the development of research and other grant proposals includes technical assistance, dissemination of requests for proposals, and editorial consultation. In certain instances, grant proposals are developed and written by the School. Contact is maintained with private corporations and foundations, as well as local, state, and national governmental agencies in pursuit of support for its research programs.

Graduate study is available in nine schools and colleges and two institutes. Collectively, these entities offer 12 Doctoral degrees and 37 master's degree programs.

Graduate Student Admissions

The Graduate Student Admissions Office is located in the School of Graduate Studies. The admissions process is a coordinated effort between the School of Graduate Studies and the academic colleges, schools and institutes. The office provides an environment that is conducive to effectively aiding students in the submission of their admission information and assisting them in their transition to graduate school.

Fellowships, Assistantships and Grants

The School of Graduate Studies manages allocations for several sources of funding. Financial assistance available to support graduate students through the School of Graduate Studies includes the University Thesis and Dissertation Incentive Awards, University Assistantships, University Fellowships and Scholarships, University Assistantship Tuition Waivers and the University Matriculation Waivers. SGSR has also received and administered over $3,443,874 in Graduate Assistance in Areas of National Need (GAANN) for graduate fellowships and approximately $1,069,500 in funds from NASA for doctoral fellowships. The Delores Auzenne Fellowship, which is a State of Florida funded Scholarship, is also awarded through the SGSR.

Graduate Feeder Scholars Program

The School of Graduate Studies manages the Graduate Feeder Scholars Program (GFSP). The GFSP is an official partnership agreement arranged by FAMU with more than 40 participating universities located throughout the United States.

The GFSP affords FAMU students the opportunity to receive advanced study in graduate programs. The feeder program was conceptualized and created in response to the national need to increase the number of African Americans participating in advanced graduate education. FAMU is the lead university in this consortium and acts as the hub with a committed role of providing a pool of qualified African American students motivated to pursue the Master's or Doctoral degrees in areas not offered at FAMU. Traditionally, FAMU students interested in the Feeder Program are required to have a 3.0 GPA and at least 30 semester hours. Since Spring 2004, in addition to the basic requirements, all applicants to the Feeder Programs must also attend a series of graduate school preparation and academic enrichment seminars and workshops before becoming a Feeder Scholar.

The National Name Exchange

In 2004, The School of Graduate Studies led the effort for FAMU to become a member of the National Name Exchange. The Exchange is a consortium of prestigious universities and colleges that collaborate to identify and recruit qualified minority candidates for graduate study, improve student access to information on graduate education, and increase the number of minority students accepted into graduate school. Capped at 30 universities, membership includes such institutions as Harvard, Duke, Rutgers, University of Washington, University of California at San Diego and Berkeley, Ohio State, Princeton and Cornell. FAMU is the 29th member of the Exchange and ranks in the top five for adding students to the Exchange Registry.

Graduate Degree Programs

SCHOOL OF ALLIED HEALTH SCIENCES
- Master of Science in Physical Therapy (MPT)
- Master of Science in Health Administration (M.S.)
- Master of Science in Health Care Administration (M.S.)
- Master of Science in Occupational Therapy (MSOT)

SCHOOL OF ARCHITECTURE
- Master of Architecture (M.Arch.)
- Master of Science in Architectural Studies (M.S.)
- Master of Landscape Architecture (MLA)

COLLEGE OF ARTS AND SCIENCES
- Master of Applied Social Science (MASS)
  - Concentrations
    - History
    - Political Science
    - Sociology
    - Economics
    - African American History
    - Public Management
    - Psychology
    - Public Administration
    - Criminal Justice
  - Master of Science in Biology (M.S.)
  - Master of Science in Chemistry (M.S.)
  - Master of Science in Computer Software Engineering (M.S.)
    - Concentrations
      - Real-Time Systems
      - Computer Science
      - Software Development
  - Master of Science in Physics (M.S.)
  - Master of Science in Psychology (M.S., Ed.S.)
    - Concentrations
      - School
      - Community
      - Master of Social Work (MSW)
      - Doctor of Philosophy in Physics (Ph.D.)

SCHOOL OF BUSINESS AND INDUSTRY
- Master of Business Administration (MBA)

COLLEGE OF EDUCATION
- NON THESIS OPTION
- Master of Education in Adult Education (M.Ed.)
- Master of Education in Business Education (M.Ed.)
- Master of Education in Counselor Education (M.Ed.)
- Master of Education in Educational Leadership (M.Ed.)
- Master of Education in Elementary Education (M.Ed.)
- Master of Education in Physical Education (M.Ed.)
  - Concentration
    - Sport & Leisure Management

242
Master of Education in Technology Education (M.Ed.)
Master of Education in Secondary Education (M.Ed.)
  Concentrations
  • Biology
  • History
  • Chemistry
  • Mathematics
  • English
  • Physics
  • Science

THESIS REQUIRED
Master of Science in Adult Education (M.S.)
Master of Science in Business Education (M.S.)
Master of Science in Counselor Education (M.S.)
Master of Science in Educational Leadership (M.S.)
Master of Science in Elementary Education (M.S.)
Master of Science in Physical Education (M.S.)
  Concentration
  • Sports & Leisure Management
Master of Science in Technology Education (M.S.)
Master of Science in Secondary Education (M.S.)
  Concentrations
  • Biology
  • History
  • Chemistry
  • Mathematics
  • English
  • Physics

Doctor of Philosophy in Educational Leadership (Ph.D.)

FAMU-FSU COLLEGE OF ENGINEERING
Master of Science in Chemical Engineering (M.S.)
Master of Science in Civil Engineering (M.S.)
Master of Science in Electrical Engineering (M.S.)
Master of Science in Industrial Engineering (M.S.)
  Concentration
  • Engineering Management
Master of Science in Mechanical Engineering (M.S.)
Master of Science in Biomedical Engineering (M.S.)

Doctor of Philosophy in Chemical Engineering (Ph.D.)
Doctor of Philosophy in Civil Engineering (Ph.D.)
Doctor of Philosophy in Electrical Engineering (Ph.D.)
Doctor of Philosophy in Industrial Engineering (Ph.D.)
Doctor of Philosophy in Mechanical Engineering (Ph.D.)
Doctor of Philosophy in Biomedical Engineering (Ph.D.)

COLLEGE OF ENGINEERING SCIENCES,
TECHNOLOGY AND AGRICULTURE
Master of Science in Agricultural Sciences (M.S.)
  Concentrations
  • Agribusiness
  • Entomology
  • Plant Science
  • Animal Science
  • Food Science
  • Engineering Technology
  • International Programs

Doctor of Philosophy in Entomology (Ph.D.) in cooperation with the
University of Florida
  Concentrations
  • Biological Control
  • Aquatic Entomology

COLLEGE OF LAW
Juris Doctorate

ENVIRONMENTAL SCIENCES INSTITUTE
Master of Science in Environmental Sciences (M.S.)
  Concentrations
  • Environmental Restoration and Waste/Management
  • Radiation Protection
  • Environmental Biotechnology
  • Marine & Estuarine Environments
  • Environmental Policy & Management

Doctor of Philosophy in Environmental Sciences (Ph.D.)
  Concentrations
  • Environmental Chemistry
  • Biomolecular Science
  • Environmental Policy and Management
  • Aquatic and Terrestrial Ecology

SCHOOL OF JOURNALISM AND GRAPHIC COMMUNICATION
Master of Science in Journalism (M.S.)
  Professional Development Track and Academic Service Track
  Concentrations
  • Copy Editing
  • Broadcast Journalism
  • Newspaper Journalism

SCHOOL OF NURSING
Master of Science in Nursing (M.S.)
  Concentration
  • Adult/Gerontological Nursing

COLLEGE OF PHARMACY AND PHARMACEUTICAL SCIENCES
Master of Science in Pharmaceutical Sciences (M.S.)
  Concentrations
  • Medicinal Chemistry
  • Pharmacoeconomics
  • Pharmacology & Toxicology
  • Pharmacoepidemiology
  • Environmental Toxicology
  • Pharmaceutics

Doctor of Philosophy in Pharmaceutical Sciences (Ph.D.)
  Concentrations
  • Medicinal Chemistry
  • Environmental Toxicology
  • Pharmacology & Toxicology
  • Pharmaceutics

INSTITUTE OF PUBLIC HEALTH
Master of Public Health (MPH)
  Concentrations
  • Bio Statistics
  • Environmental Occupational Health
  • Health Education
  • Health Management
  • Epidemiology

Doctor of Philosophy (DrPH)
  Concentrations
  • Health Education
  • Epidemiology

Graduate Admissions

Eligibility Requirements

Admission to graduate study is granted to qualified applicants who are seeking degrees and to qualified post-baccalaureate students who may wish to upgrade specialty certifications or enhance their knowledge. The decision on whether credits earned by post-baccalaureate students can be applied toward a graduate degree at a later date is determined exclusively by the academic unit offering the degree sought. The unit's decision is not subject to appeal.

Admission to graduate study at Florida A&M University is in conformity with the uniform requirements that the Florida Board of Education has established for the entire State University System. Minimum requirements for admission to graduate study are:

I. Take the GRE,
II. A combined score of 1,000 on the Verbal and Quantitative sections of the Aptitude Test of the Graduate Record Examination, or A 3.00 (on a 4.00 scale) cumulative grade point average (GPA) covering the last ninety (90) quarter hours (or 50 semester hours) of undergraduate preparation, or
III. Possession of a graduate degree from an accredited institution of higher education.
Applicants seeking admission to the Master of Business Administration program are required to make an acceptable score on the Graduate Management Admission Test (GMAT).

No more than 10 percent of the graduate students admitted for an academic year may be admitted as exceptions to the criteria above. These requirements also apply to all foreign students. Timely applications are important. Students are urged to apply in the fall of their senior year. This time-line allows the evaluation and award process to begin by January of each academic year. Additional evaluation and award processes are conducted in March and May annually. However, late applications diminish opportunities for admission and financial awards.

Admission Application Fees

The Admission Application fee of $20 must accompany the Non-FAMU Graduate Application. The check or international money order must be made payable to Florida A&M University. The applicant should indicate his/her name, social security number and address on personal checks and international money orders.

Non-FAMU Graduate Admission

Non-FAMU applicants must complete the Graduate Admissions Application and forward it to the School of Graduate Studies, 400 Tucker Hall, Tallahassee, FL 32307. An official copy of the undergraduate transcript and Graduate Record Examination scores must be submitted to be considered for admission.

FAMU Graduate Admission

Admission procedures for FAMU graduates and former students follow the same procedures. FAMU graduates or any student who was officially admitted and attended FAMU for at least one term must complete the Re-Admission Application. The following is also required:

1. The student must complete the graduate re-admission application and mail to the School of Graduate Studies and Research, 400 Tucker Hall, Tallahassee, FL 32307.
2. The transcript will be retrieved from the University's files for FAMU students. The applicant will not have to request a transcript.
3. If the applicant previously attended FAMU but graduated from another institution, the applicant will be required to request that an official transcript be forwarded to the School of Graduate Studies and Research.
4. FAMU graduates and former students are not required to pay the $20 application fee.

Formerly Admitted Graduate Students

Any student who was admitted to a program, attended the University for at least one semester, and has not enrolled for two consecutive terms will need to complete the Re-admission Application. Follow the admission procedures for the FAMU Graduate Admissions.

International Students

FAMU encourages international students with superior scholastic records, adequate English proficiency, and an earned bachelor's degree from a recognized college or university to apply for admission to a designated program in the School of Graduate Studies and Research. Such students must have a grade point average of 3.0 or above at the undergraduate level or the equivalent, as determined by the Admissions Office. Other admission requirements are listed in the descriptions of each of the degree programs offered by the University.

Although international students must show sufficient financial resources to complete a program prior to admission, financial assistance may be given to students who are invited to enroll on the basis of academic performance, promise, leadership qualities, and special talents. This is based upon the recommendation of the graduate admissions committee of the school or area offering the degree and the approval of the dean of graduate studies.

Transfer Students

Students transferring from another institution must be in good academic standing at the previous institution and eligible to return.

Post-Baccalaureate Non-Degree Students

A person who holds a bona fide baccalaureate degree but who is not officially admitted to or approved for graduate study may be permitted to take a limited number of graduate courses for teacher certification, re-certification, or other special interests or needs. Successful completion of such post-baccalaureate coursework shall have no affirmative bearing on the student's admissibility to graduate study, and may, or may not, at the discretion of the appropriate officials of the University, be used for graduate degree credit where such student subsequently gains admission to graduate study.

Admission of Special Students

A person who does not have the required 3.00 CPA or GRE scores for unqualified admission to graduate study may be admitted to graduate degree study, pending achievement of a satisfactory GRE score within one semester of admission date. Such special students shall be limited to 12 semester hours of coursework until they are fully admitted without qualification. Course credits exceeding the 12-hour limit by the student in the "special" admission category will not be accepted for degree credit. Special students are not eligible for financial assistance.

Transfer of Credit

At the discretion of the appropriate academic unit, a maximum of six semester hours of graduate coursework may be accepted by the University at the master's level. The maximum permissible transfer credits at the Ph.D. level is twelve (12) semester hours. In both of the above instances, credit transfers must be from bona fide, properly accredited colleges and universities.

Time Limitation for Completion of Degrees

A maximum of five (5) years and seven (7) years is permitted for the completion of master's and Ph.D. degrees, respectively. Students exceeding these time limits from first matriculation to graduation may be required to initiate new courses of study.

Grading Policy

Grading Policy for Graduate Degree Students

1. Minimum grade requirements for all graduate programs and degrees
   a. A cumulative CPA of 3.00 must be maintained regardless of course/credit hour load.
   b. Only a grade of "B" or higher is acceptable for required courses. A required course must be repeated if a grade lower than a "B" is received. For all other courses the grade of "C" or better is acceptable.
   c. A grade of "U" in any phase of the thesis/research/dissertation process shall require the student to be placed on probation for one semester. A second "U" grade in the thesis/research/dissertation process may warrant termination of the student's degree-seeking status.
   d. The student's chief advisor is responsible for informing the student of grade requirements and the need to adhere to the grading standards.

2. Appeals of grade assignments
   a. All appeals regarding grade assignments must be made on an individual basis.
   b. Each appeal must have formal, documented approval of the graduate faculty of the college, school, or institute in which the student is studying.
   c. All appeals must be made to the Graduate Council within one month after the grade variance from established policy has occurred.
   d. A two-thirds (2/3) affirmative vote of the entire voting membership of the Graduate Council shall be required to make a grade exception.
   e. Grade appeals may be made by a student's chief advisor or any voting member of the Graduate Council from the student's school or college.
   f. No graduate student, regardless of degree sought, or time in study, shall be permitted to appeal directly, or in person to the
Graduate Council regarding his or her grade(s).

g. Grade appeals may be made orally, but must be accompanied by a written statement which outlines the appeal facts and justifications and produced in sufficient quantity for the entire Graduate Council membership.

3. More restrictive grading policies by individual schools or colleges or programs

a. More restrictive grading policies by individual schools, colleges, institutes or programs must have prior approval of the Graduate Council before their establishment.

b. A two-thirds (2/3) vote by the voting membership of the Graduate Council is required for the approval of more restrictive grading policies.

4. Grades and Financial Aid

a. Each graduate student who receives any form of financial aid must earn the grades and maintain the GPA stipulated above while carrying a full load of credit hours.

b. It is the responsibility of each respective school or college, via its graduate officer or student advisor, to monitor each graduate student's credit hour load, grades, grade point average (GPA), and overall progress toward the degree. This officer/advisor must report promptly to the graduate dean all actions, or recommended actions, for any student who violates or is in default of the above policies and standards.

c. A full credit load consists of a minimum of nine (9) hours in the Fall and Spring Semesters and six (6) hours in the Summer term.

d. Any graduate student who fails to maintain the minimum credit hour load, grades, and grade point average (GPA) required must be immediately removed from financial assistance with prompt documentary notice to the graduate dean.

Grade Forgiveness Policy For Graduate Students

A graduate student enrolled at Florida A & M University who receives a C, D, or F grade, which fails to meet the requirements of a specific graduate program, may petition the Program Dean or Graduate Director to retake the course. The course must be taken at Florida A & M University (FAMU), unless the course is offered at Florida State University (FSU) under the FAMU/FSU cooperative program and the course must carry the same course number and description. Only the higher grade shall be used in computing the overall grade point average (GPA), but both grades will remain on the transcript. If both grades are the same, only the second will be counted in the GPA. A graduate student may repeat no more than two courses in any graduate program at Florida A & M University, and may repeat each course only once. A grade forgiveness form must be submitted by the student to the Registrar's Office after the course is retaken and prior to graduation.

Graduate Student Grievance Procedure

It is the goal of the School of Graduate Studies and Research to provide students with an expeditious, fair, equitable, and consistent procedure for resolving their academic grievances. This policy includes procedures and rules to guide the student through the process. The intent is to resolve issues informally before filing a complaint, or seeking redress beyond the unit in which the alleged offense occurred.

- The student shall submit his/her grievance in writing within 30 days or 10 days into the next semester by using a form provided by the graduate coordinator or academic dean of the college. This form should be stamped to indicate the date and time the grievance was initiated.

- The grievance process can start/stop at any level. However, the graduate coordinator should act as the facilitator.

- If the professor and graduate coordinator cannot find a satisfactory solution, the matter will be forwarded to the graduate committee/graduate faculty within the college.

- The graduate committee/graduate faculty will forward a report indicating their decision to the dean of the college.

- If the dean is not able to resolve the matter, the issue is forwarded to the graduate council committee on graduate student grievance.

- The graduate council committee should submit a report to the dean of the School of Graduate Studies and Research.

- The dean of the School of Graduate Studies and Research will review all the documents provided on the issue and make a decision.

- The dean of the School of Graduate Studies and Research will refer the matter to the Provost if a satisfactory solution is not reached.

- The Provost shall make the final decision.

- A written recommendation is required at each step.

Financial Assistance

Financial assistance is available to support graduate students through the various colleges, schools and institutes, and the Office of the Graduate Dean. The categories of financial aid include:

- Fellowships
- Assistantships
- Matriculation fee waivers
- Out of state fee waivers
- Thesis/dissertation incentive awards

- Although the assistance provided via the Graduate Dean's office is not based upon need, applicants must establish their eligibility to receive aid through their academic advisors, the respective college and school deans, and/or institute directors. Only fully-admitted, full-time graduate students shall be eligible to receive financial assistance from university funding sources. Most graduate students should be prepared to pay some of their graduate study costs utilizing their own funds.

Eligibility Requirements

Financial assistance is reserved for fully-admitted, full-time, degree-seeking graduate students who are in good academic standing. Full-time graduate students must enroll for at least nine (9) graduate hours each semester, except in the summer semester when a full load is six (6) semester hours.

Undergraduate courses will not be included for determining a student's full-time status. The student's cumulative graduate GPA must never fall below 3.0, and there can be no grade below "B" in required courses. In addition, the student must be making satisfactory progress toward the degree by successfully completing at least nine credit hours each semester. Fellowship recipients may also receive matriculation fee waivers, and those from outside Florida may receive an out-of-state assistantship waiver, if funds are available.

University-based Funding & Funding from an External Source

Funds at the University are insufficient to provide fellowships to all worthy students. Therefore, we strongly encourage students to apply for outside funds. If, while receiving University-based funding, a student receives funds from an outside source (i.e., a National Science Foundation, Pfizer, Graduate Assistance in Areas of National Need or Javitz fellowships), the student will be required to accept that award, which will run concurrently with the University-based award. The total amount of funds that a student can be awarded will be based on the Free Application for Federal Student Aid (FAFSA) calculations. The University-based award may be reduced if the total funding from all sources exceed the gross financial need as determined by FAFSA. For example, Student A may find, after filling out the FAFSA form, that his/her gross financial need is $22,500. Student A has received a fellowship from the GAANN (Graduate Assistance in Areas of National Need Program) totaling $16,600. Student A also has been awarded a University-based fellowship totaling $9,000. This would equal a total of $25,600 and would exceed the student's financial need of $22,500 by $3,100. If the student accepts the GAANN award, it would be necessary to reduce the $9,000 University-based fellowship to $5,900 so that the total of the GAANN and University fellowship will not exceed the $22,500 FAFSA calculation.
Awards from Multiple External Sources

A student who has taken the initiative to apply for funding from various external sources may have her/his efforts rewarded by receiving awards from two or more of those sources.

In most cases, individual funding institutions have very specific guidelines that restrict a recipient from concurrently holding another award, fellowship or assistantship. However, in rare cases, no restrictions or limitations may be imposed. If a student has been awarded funding from two or more sources, and neither source has restrictions about holding co-existing awards, then the student is allowed by the University to receive all awards.

To ensure that the financial needs of other students are met, the University deems a student ineligible for receipt of University-based funds if the total amount of the awards received from the multiple outside sources exceeds her/his gross financial need as determined by FAFSA calculations. The amount of federal loans a student is eligible for is also affected by the total amount of outside funding the student receives. The amount of federal loans is also affected if the agency or institution granting the funds is federally affiliated.

Federal Loans and Funding from External Sources

Graduate students may borrow money from the federal government to help pay for their educational expenses. However, the federal government has imposed restrictions on the amount of loans that a graduate student may apply for annually. There are also certain criteria which must be met in order for a graduate student to receive federal loans.

Furthermore, the government uses a formula to determine eligibility for a loan. The information a student must place on the FAFSA (Free Application for Federal Student Aid, available at the University Financial Aid office or at www.fafsa.ed.gov) is applied in the formula to determine need and the amount the government will lend. All of this information is available in the Student Guide to University Financial Aid, which can be retrieved from the University Financial Aid Office, the Department of Education or at www.ed.gov/collegeinfo/FAA/StudentGuide.

If a student is receiving funding from an outside source(s) (i.e. National Science Foundation, Pfizer, or Javitz), and wishes to apply for a federal loan, she must fill out a FAFSA form. The amount of loan the student is eligible for will be determined by the award amount and various other factors, such as marital status, and number of dependents.

University-based Funding and Federal Loans

Again, graduate students may borrow money from the federal government to help pay for their educational expenses, with the understanding that such funding comes with restrictions.

A student receiving University funding may also be eligible for federal loans. The amount of the loan is determined by need, based on the formula used on the FAFSA form. For example, if the FAFSA calculations show that Student B has a gross financial need of $20,000, and the University is giving the student $9,000 in funding, then the student should be eligible for $11,000 in loans. For more information, the student should contact the Financial Aid Office, 110 Foote-Hilyer, (850) 599-7730.

Fellowship/Grant Application Submission

Each graduate student receiving or seeking funding from the University, is strongly encouraged to put forth at least one effort to obtain funding from an agency external to the University. As an incentive to seek external funding, a student, who applies for and receives a grant exceeding the amount of funds she is receiving from the University, will be able to keep 50% of the University-based monies provided that the collective funds do not exceed FAFSA limits and that there are no prohibitive stipulations in the grant or fellowship.

Generally, applications to external foundations are due early in the fall semester for funding for the next academic year. Faculty and department heads are encouraged to provide graduate students assistance with producing outstanding and competitive fellowship and grant applications. Where possible, the School of Graduate Studies and Research will provide grant/fellowship writing workshops, as well as examples of successful proposals.

### COLLEGE OF ARTS AND SCIENCES

The College of Arts and Sciences offers masters' degrees in applied social sciences, sociology, political science, psychology, community psychology, and political science. The Ph.D. degree in Physics is also offered.

### Applied Social Science

**Master of Applied Social Science (M.A.S.S.) with Concentrations in History, Political Science, Sociology, Public Administration, and Criminal Justice**

The following departments in the College of Arts and Sciences participate in the interdisciplinary degree, Master of Applied Social Science (M.A.S.S.).

**History, Political Science, Public Administration, Sociology, and Criminal Justice**

Courses are available in the M.A.S.S. Program from the disciplines of political science, public administration, history, sociology, and criminal justice.

The unique feature of this applied, interdisciplinary program is its flexibility. Building upon a required core of three courses (9 semester hours), the student, in consultation with an advisor, may design the remainder of the program to address his/her own unique interests. The degree is designed for those who wish to pursue further graduate work in the social sciences and for those who wish to work immediately following completion of the M.A.S.S. Degree.

For the full-time student, the course of study will likely span two semesters plus one summer, totaling 33 hours. Some students may be required to take several prerequisites before commencing with their academic program. The following is an outline of the degree programs:

#### Core Courses Required of All Students (9 Semester Hours)

- Interdisciplinary Social Science Seminar (ISS 5939)
- Social Science Research (ISS 6305)
- Statistics for Public Managers (PAD 5701) or Statistics for the Social Sciences (ISS 5316)

All core courses must be completed with a grade of "B" or higher.

#### Discipline Courses (18 Semester Hours)

Students are required to take six courses (18 hours) in their subject area concentration. Courses may be selected from one of the following disciplines: (1) History; (2) Political Science; (3) Public Administration; (4) Sociology, and (5) Criminal Justice.

Those students whose undergraduate degrees are in areas outside their chosen area of concentration may be required to take designated undergraduate courses to prepare them for entrance into the M.A.S.S. program. The Chair of the department of the major area and the Graduate Coordinator of the program shall make such a determination. Prerequisites for History, Political Science, Public Administration, Sociology, and Criminal Justice are as follows:

- **Political Science**
  - Introduction to Political Science
  - American National Government

- **Criminal Justice**
  - Criminological Theory
  - Research Methods

- **Sociology**
  - Social Thought/Theory
  - Research Methods

- **History**
  - Nature of History
  - Historiography

- **Public Administration**
  - Intro. Public Administration
  - Budget and Fiscal Mgt.
Entrance Requirements

Entrance requirements for the M.A.S.S. Program include:

(1) A baccalaureate degree from an accredited institution and, (2) a "B" average in the last 60 semester hours of course work, or a score of 1000 or better (verbal and quantitative only) on the Graduate Record Exam (GRE).

Special Students: Special students who do not meet the qualifications listed above are not permitted to take more than twelve (12) semester hours until they have successfully completed the GRE or been admitted to regular status under the 10% exception rule.

One Special Student may be admitted to regular status for every ten (10) fully qualified students entering the program. The selection of Special Students for regular status will be determined by the GPA in the twelve (12) hours taken, the undergraduate GPA, and other factors determined by the Admissions Committee.

Fully admitted students may receive credit for up to six (6) graduate semester hours of transferred courses from another institution. The Coordinator of the M.A.S.S. Program will determine all approved transferred credit hours.

NOTE: A cumulative GPA of 3.0 must be maintained regardless of course/credit hour load. A student may not earn more than two (2) Cs, otherwise the student will be dropped from the program. All students must take the GRE within sixty (60) days of admittance into the program. Failure to comply will result in the student not being able to register for classes the next semester.

Internship and Thesis

All students must complete an approved internship or a thesis to qualify for graduation.

Internships will be with a government agency - local, state, federal - or with a private concern. Internships should be related as nearly as possible to the student's major area and must have the prior approval of the Coordinator and the professor supervising the internship.

The internship should be a new, professional experience for the student. If a proposed internship does not violate internship criteria, a student may intern in another department of the agency where he/she is employed. The internship must not be simply a continuation of regular duties.

The appropriateness of all internships will be determined on an individual basis by the Chair of the department of the student's major and the Coordinator of the M.A.S.S. Program.

A student wishing to write a thesis must select a committee of at least three faculty members. The committee chair must be from the student's major emphasis, the second member must be from the area of concentration; and the third member may be from the outside the student's area of concentration.

NOTE: For additional information and requirements pertaining to internship please refer to the internship packet available from the Coordinator of the M.A.S.S. Program.

Political Science Program Courses

Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISS 6305 Social Sci. Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>ISS 5939 Interdisciplinary Seminar</td>
<td>3</td>
</tr>
<tr>
<td>POS 5208 Psychology of Political Behavior</td>
<td>3</td>
</tr>
<tr>
<td>POS 5117 Prob. State &amp; Local Gov.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAD 5701 Stats. for Public Managers</td>
<td>3</td>
</tr>
<tr>
<td>POS 6427 Seminar in Legis. &amp; Legis.</td>
<td>3</td>
</tr>
<tr>
<td>POS 6247 Seminar in Political Science</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Public Administration Program Courses

Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISS 6305 Social Sci. Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>ISS 5939 Interdisciplinary Seminar</td>
<td>3</td>
</tr>
<tr>
<td>PAD 5417 Prob. in Pub. Person Adm.</td>
<td>3</td>
</tr>
<tr>
<td>PAD 6227 Seminar Pub. Finance Adm.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAD 5701 Stats. for Public Managers</td>
<td>3</td>
</tr>
<tr>
<td>PAD 6033 Seminar in Adm. Politics</td>
<td>3</td>
</tr>
<tr>
<td>PAD 5025 Public Management</td>
<td>3</td>
</tr>
<tr>
<td>PAD 5306 Problem of Public Analysis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

History Program Courses

Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISS 6305 Social Sci. Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>ISS 5939 Interdisciplinary Seminar</td>
<td>3</td>
</tr>
<tr>
<td>AMH 5930 Selected Topics in US History</td>
<td>3</td>
</tr>
<tr>
<td>AMH 5578 Problems in African Am. His.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAD 5701 Stats. for Public Managers</td>
<td>3</td>
</tr>
<tr>
<td>AFS 5151 Life &amp; Culture of Sub Africa</td>
<td>3</td>
</tr>
<tr>
<td>AMH 5409 Prob. History of the South</td>
<td>3</td>
</tr>
<tr>
<td>AMH 5116 Civil War Reconstruction</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Criminal Justice

Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISS 6305 Social Sci. Research Methods</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>
Course Descriptions

AFS 5151 Life and Culture of Sub-Sahara Africa (3) Overview from ancient times to present, emphasizing cultural traditions.

AMH 5116 Civil War Reconstruction (3) Intensive analysis of recent interpretation of causes of Civil War and problems of Reconstruction. Oral and written reports on selected topics required.

AMH 5392 Seminar in U.S. Social History (3) Selected topics in American social history, emphasizing conflicting interpretations.

AMH 5409 Problems in History of South (3) A critical analysis of selective issues which influenced development of Southern history from Jamestown to present.

AMH 5578 Problems in African American History (3) Selected topics in black history, with emphasis on historiography and interpretations.

AMH 5579 Problems in American Constitutional History (3) Survey of origin, fundamental concepts, and principles of constitutional history. Identification and development of research topics. All students research and write substantial papers based largely on primary sources.

AMH 5930 Selected Topics in United States History (3) Emphasis on critical problems in American History, research and interpretations.

ANT 5702 App of Anthropology (3)

CCJ 5020 Juvenile Justice (3) Examines the various approaches to juvenile justice policies, programs, and services. Also examines the array of issues central to prevention, intervention, diversion and rehabilitation of juvenile offenders.

CCJ 5446 Correctional Management (3) An overview of correctional management including history, increases in confinement, decline of community based corrections, revival of capital punishment, models in correctional management, and characteristics of correctional institutions. Comparison of traditional contemporary correctional systems will be emphasized.

CCJ 5457 Court Administration (3) This course introduces students to the rudiments of court administration. With a concern for the practical aspects of court administration, the course focuses on analysis of the administrative functions of the court, the delegation of administrative duties, the adversarial system, and other concepts relating to the court as an institution of government. Management functions, management styles, and leadership will also be explored to understand the dynamics of organizational change in courts.

CCJ 5608 Criminology Theory and Practice (3) Historical and contemporary examination of the major theories of criminology. Emphasis is placed upon critical analysis and practical applicability of theories to criminal justice policies.

CCJ 5659 Race, Class, Gender and Crime (3) The purpose of this course is to evaluate and provide a better understanding of women within the criminal processing system under the roles in which they encounter. This course will take a contextual approach to evaluate women in a broader social, cultural, economic and political framework.

CCJ 5910 Independent Research in Criminal Justice (3) Presents, explains, and explores viable solutions to contemporary issues facing the criminal justice systems in law enforcement, courts, prosecution, sentencing, and criminal law, etc.

CCJ 5934 Contemporary Issues in Criminal Justice (3) Presents, explains, and explores contemporary issues facing the criminal justice system in law enforcement, courts, prosecution, sentencing, criminal law, etc.

CCJ 5948 Special Topics (3)

CCJ 5941 Special Topics II (3)

CCJ 6974 Internship and Internship Paper (6) Supervised graduate internship and internship paper for master of applied social science program.

HIS 5209 Contemporary Problems (3) Investigation of selected problems faced by Europe, Asia, and Africa since World War II.

HIS 6971 Masters Thesis (6) Research and defense of project selected by student with approval of thesis committee.

ISS 5316 Advanced Applications of Statistics & Research (3) Graduate research and statistics skill development with computer applications leading to mastery of data reduction and analytic techniques.

ISS 5939 Interdisciplinary Seminar of Applied Social Science (3) Course taught in the beginning semester of each student's work. Utilizes the approach which produces the convergence of social and behavioral science disciplines.

ISS 6305 Social Science Research Methods (3) Fundamental principles of social science research and related research design. The course is structured to develop students' abilities to think clearly, critically, and logically about social science issues through the scientific evaluation of empirical issues and evidence.

ISS 6942 Internship and Internship Paper (6) Supervised graduate internship and internship paper for master of applied social science program.

PAD 5025 Public Management: Practice and Problems (3) Meaning, content, significance, and evolutionary development of public administration; administration and politics; patterns of management; and legal bases of administration, accountability, and administrative responsibility.

PAD 5306 Problems of Public Policy Analysis (3) Problems related to approaches, predictions, and application of public policy analysis in terms of instruments of policy development and selected areas of policy.

PAD 5417 Problems of Public Personnel Administration (3) Basic problems encountered by government executives in recruiting, maintaining, and developing personnel, such as career development, leadership, motivation, and employee relations.

PAD 5701 Statistics for Public Managers (3) This course provides knowledge of data analysis as part of the scientific method of research. Students will conceptualize the principles of quantitative and qualitative data analysis and apply these principles to data analysis in research and practice. Practical knowledge and application of descriptive and inferential is anticipated.

PAD 6035 Seminar in Administrative Politics (3) Analysis of processes by which and through which administrative agencies determine and enforce policy in terms of legal and political considerations, as well as in terms of behavioral theory.

PAD 6060 Seminar in Public Management (3) Major theoretical concepts in public administration and their relationship to selected aspects of public policy, as well as their application to behavior of administrators in developing industrialized government systems.

PAD 6227 Seminar in Public Financial Administration (3) Review of administration, organization, methods, problems, and policy implications of execution of governmental fiscal policies through budgetary formulation and revenue collection.

POS 5117 Problems in State and Local Government (3) Identification and analysis of the basic problems of state and local government. Major emphasis on the current problems of functional significance.

POS 5208 Psychology of Political Behavior (3) Prerequisite: Role of psychological construct and theories in political explanation; analysis of research with such topics as the effects of psychological factors on attitudes, efficacy, leadership, loyalty, participation, political change, and policy issues.
Biology
Master of Science

A program of study leading to a master's degree in biology is offered by the Department of Biology in the College of Arts and Sciences. This program is designed to develop competency in the teaching of biology at the undergraduate level, and also competency in research methods essential for pursuing doctoral studies.

The four areas of specialization are cell and molecular biology, physiology, ecological science, and an interdisciplinary program in space life sciences. After completing the core courses, the student may choose one of the four curricula and a topic for thesis research. If the prerequisites for any of the courses have not been completed, the student must make up the deficiencies prior to taking the required courses. The details of the program are given below.

1. Admission
   Admission to the master's program is in conformity with the uniform requirements that the Board of Regents has established for the entire SUS.

   A. A 3.0 (on a 4.0 scale) cumulative grade point average covering the last 60 semester hours of undergraduate preparation, or a possession of a baccalaureate degree from an accredited institution of higher education;
   B. Approval of applications from undergraduate seniors is conditional upon their completion of the baccalaureate by taking courses prescribed by the department, prior to commencement of graduate studies;
   C. A combined score of 1,000 on the verbal and quantitative section of the aptitude test of the Graduate Record Examination;
   D. In addition to meeting the minimum numerical requirements, the other factors that will be considered are the quality of the student's undergraduate preparation, the quality of the student's undergraduate performance in specific courses, the student's motivation and attitude as ascertained by at least two letters of recommendation written by undergraduate instructors, and/or a personal interview; and
   E. Foreign students whose native language is not English must make a score of 550 or better on TOEFL (Test of English as a Foreign Language).

2. Academic Requirements:
   The master's degree requirements should be met in four to six semesters. The requirements include:
   A. At least 31 semester hours of graduate credit (5000-level and above courses and 4000-level courses recommended by the student's committee), including a minimum of 6 semester hours of thesis credit;
   B. Teaching experience in at least one biology laboratory course recommended by the student's supervisor committee;
   C. Submission of an acceptable master's prospectus;
   D. Completion of an acceptable research thesis;
   E. Passing the final comprehensive examination; and
   F. Successful oral presentation of thesis.

Core Courses

PCB 5455 Statistical Procedures .................................................. 3
PCB 5205C Cell Structure and Function ........................................ 3
BSC 5935/5921 Graduate Seminar/Colloquium ................................ 1*
BSC 7912 Graduate Directed Research ........................................ 1-4
BSC 5971 Thesis ................................................................. 6-12
BSC 8920 Master's Comprehensive Exam .................................... 16-25

* Student should enroll in seminar or colloquium each semester of residence.

Elective Courses

The three areas of emphasis are cell and molecular biology, physiology, and ecology.

Cell Molecular Biology (15 credit hours of electives)

PCB 6524 Molecular Biology ....................................................... 4
PCB 5235 Immunology ............................................................. 4
Advanced Cell Biology ............................................................. 4
PCB 6525 Molecular Genetics ..................................................... 4
Radiation Biology ................................................................. 3
PCB 5595 Principles of Gene Manipulation .................................. 4
PCB 6175 Principles of Techniques in Electron Microscopy ............ 3
PCB 5025 Molecular Cell Biology ................................................. 4
PCB 6615 Experimental Embryology ........................................... 4

Physiology (15 credit hours)

Cell Physiology ................................................................. 4
PCB 5727 Comparative Animal Physiology .................................. 4
PCB 5786 Membrane Physiology ............................................... 4
PCB 5806 Endocrine Physiology ............................................... 4
PCB 6835 Neurophysiology ..................................................... 4
ZOO 5890 Developmental Biology .............................................. 3
Animal Reproductive Physiology .............................................. 3
Graduate Course Descriptions

BSC 5101 History of Biology (3) A survey of the historical developments from ancient times to modern times. A discussion of the milestones is a vital part of the course.

BSC 5921 Colloquium (1) Presentations by invited scientists. Compulsory attendance for a "S" or "U" credit.

BSC 5935 Graduate Seminar (1-2) Oral presentations on selected topics in the field of specialization.

BSC 5940 Supervised Teaching (variable 1-4).

BSC 5971 Thesis (3-6) may be accumulated up to a maximum of 15 hours.

BSC 6600 Microbial Ecology (4) Prereq: MCB 3023 Microbiology. Microbes in terrestrial and aquatic habitats, structure of communities, population interactions, abiotic factors, select habitats and ecology, role of microbes in space biology and biotechnology.

BSC 6935 Special Topics in Biology (1-4).

BSC 7912 Graduate Directed Research (1-4).

BSC 8970 Master's Comprehensive Examination (0) Oral defense of Master's thesis and research.

OCB 5050 Marine Biology (3) Prereq: PCB 2033C. Topics of marine ecosystem such as primary production, energy relations, physicochemical factors, taxonomic groups, deep estuaries, lagoons, and marshes are covered. Field trips are supplementary.

OCB 5845 Estuarine Biology (3) Prereq: PCB 2033C. Study of the chemical and physical processes in estuaries and salt marshes as related to the seasonal and spatial pattern of plant and animal species. Emphasis on estuarine community structure, and utilization by species and man. Field trips are required.


PCB 5045 Environmental Ecology (3) Global environment, global warming, air pollution, acid rain, ozone layer, species populations, environments, and pathological effects of pollutants on organisms.


PCB 5206C Cell Structure and Function (3) Prereq: BSC 1011C. Subcellular structures as related to their biochemical and physiological role.

PCB 5235 Immunology (4) Prereq: BCH 4034 Biochemistry. Natural and acquired immunity, theories of antigen-antibody formation, humoral and cell-mediated systems, nature of antibodies, monoclonal antibodies and practical applications.

PCB 5307 Limnology (4) Prereq: PCB 3033 Ecology. Lotic and lentic systems, limiting factors, producers, primary production, food webs, total production, populations, species niches, holistic function, freshwater marshes, alternations of systems.


PCB 5455 Statistical Procedures (3) Prereq: STA 3053. Experimental design, data collection, measurement, estimation and testing. Analysis of variance, regression and correlation and multivariate statistics.


PCB 5665 Human Genetics (2) Prereq: PCB 3063C, BCH 4033. Basic principles and mechanisms of human genetics. Several hereditary disorders will be discussed and impact of genetic counseling examined.


PCB 5786 Membrane Physiology and Biophysics (4) Prereq: PCB 4023 Cell Biology. Membrane, permeation, active transport, bulk transport, action potentials, propagation of action potentials, and contractility.

PCB 5806 Endocrine Physiology (4) The emphasis is on vertebrate hormones. Types and chemistry of hormones, actions of pituitary, thyroid, parathyroid, thymus, adrenal hormones, control of reproductive cycles and hormones in development, and mechanisms of hormone action and regulation of function.


PCB 6835 Neurophysiology (4) Prereq: PCB 3743 Vertebrate Physiology. Divisions of the nervous system, membrane potentials, propagation of action potentials, synapses and nerve conduction, nerve tracts and ganglia functions, brain, spinal cord, and autonomic nervous system.

PHZ 5156 Scientific Computations (4) Prereq: Knowledge of a computer language-FORTRAN, Pascal or Basic. Algorithms, models, fundamental numerical operations, linear algebraic functions, eigenvalue problems, and Monte Carlo methods.

ZOO 5215 Advanced Vertebrate Biology Prereq: ZOO 3203. Discussions of physiology, ecology and evolution of invertebrate animals.

Chemistry
Master of Science

The Department of Chemistry offers both a thesis and a non-thesis option leading to the master of science degree in chemistry. The thesis option is designed to provide students with advanced course work and experience in chemical research. This option is desirable for students to engage in chemical research or continue graduate studies toward the Ph.D. Degree in Chemistry. The course-type option (non-thesis) is designed to provide students with a strong technical education, but with less emphasis on research. The non-thesis option is primarily designed for persons who wish to combine advanced work in chemistry with another profession, such as business or patent law for persons already engaged in an industrial or governmental occupation requiring advanced work in chemistry or for persons engaged (or who will be engaged) in high school or junior college teaching of chemistry. All candidates for the master of science degree in chemistry must satisfy all additional requirements for the master's degree of the Department of Chemistry.

Admissions: All candidates for admission to the chemistry department for the M.S. degree in chemistry must possess a bachelor's degree in chemistry from an accredited institution of higher learning. They must have at least an overall "B" average. Students who do not possess a bachelor's degree in chemistry will be required to complete a department-designated sequence of undergraduate courses with grades of "B" or better. A battery of ACS placement examinations will be administered to every entering student to determine course selection during his/her first year of graduate study. Applicants must also take the Graduate Record Examination (GRE). They must earn a combined score of at least 1,000 on the verbal and quantitative sections of the GRE, and/or possess at least a grade point average of 3.00 on a 4.00 scale over the junior and senior years of undergraduate study.

Course Requirements: All students pursuing the M.S. Degree in Chemistry are required to complete a minimum of thirty-one (31) semester hours. For both the thesis-type and course-type options, a course of study is formulated for each student by a supervisory committee. In any case, each student must complete sixteen semester hours of core courses as listed below:

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Sem Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 515S</td>
<td>Chemical Separations Methods</td>
<td>3</td>
</tr>
<tr>
<td>CHM 540C</td>
<td>Chemical and Statistical Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>CHM 5610C</td>
<td>Inorganic Chemistry Principles</td>
<td>3</td>
</tr>
<tr>
<td>BCH 5041C</td>
<td>Protein Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM 5225C</td>
<td>Advanced Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM 6935</td>
<td>Chemistry Graduate Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

Course Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Sem Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 5150C</td>
<td>Advanced Analytical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM 5490C</td>
<td>Chemical Spectroscopy</td>
<td>3</td>
</tr>
<tr>
<td>CHM 5440C</td>
<td>Chemical Kinetics</td>
<td>3</td>
</tr>
<tr>
<td>CHM 5480C</td>
<td>Quantum Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM 5260C</td>
<td>Physical Organic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM 5380C</td>
<td>Topics in Organic Synthesis</td>
<td>3</td>
</tr>
<tr>
<td>CHM 5650C</td>
<td>Structural Methods in Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM 5513C</td>
<td>Principles of X-Ray Crystallography</td>
<td>3</td>
</tr>
<tr>
<td>CHM 5540C</td>
<td>Chemical Applications of Group</td>
<td>3</td>
</tr>
<tr>
<td>CHM 5140C</td>
<td>Electronic Instrumentation for Chemical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CHM 5971</td>
<td>Graduate Thesis in Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>BCH 5501C</td>
<td>Enzymology</td>
<td>3</td>
</tr>
<tr>
<td>CHS 5610C</td>
<td>Environmental Chemistry</td>
<td>3</td>
</tr>
</tbody>
</table>

Students following the thesis tract must complete, in addition to the core courses,

- Three (3) hours of elective courses,
- Twelve (12) hours of thesis research. Upon consultation with the major professor, six (6) of these hours may be substituted with elective courses.

- Successfully give an oral presentation and defend an acceptable thesis based on original laboratory research.

Students following the non-thesis option must complete, in addition to the core courses, nine (9) hours of electives and an approved project for three (3) semester hours. A written report, acceptable to the department, should be submitted at the end of the project.

Students who wish to pursue a teaching career must complete, in addition to the core courses, twenty-one (21) to twenty-three (23) hours of education courses in the College of Education.

Regardless of the type of master's degree, students pursue in the chemistry department, all of them must satisfy the following additional requirements:

1. Maintain a cumulative GPA of at least 3.0 on a 4.0 scale.
2. For at least for one semester, successfully complete a task assigned by the Chairman of the department and the Chairman of the Graduate Committee. The task may be teaching at least one undergraduate laboratory course under departmental supervision or assisting a faculty member in grading or any other activity deemed to be an important part of graduate training.
3. Achieve a passing grade (70%) in a written Comprehensive examination.

Graduate Course Descriptions

BCH 5045 Biochemistry (3) Prereq: One semester of introductory biochemistry or consent of instructor. A detailed study of the chemistry of nucleic acids; DNA, RNA and protein biosynthesis and processing; genes and control of gene expression recombinant DNA; gene function in immunological specificity and in development; genetic basis of cancer.

BCH 5501C Enzymology (3) Prereq: One semester of introductory biochemistry or consent of instructor. Study of structure of enzymes; enzyme kinetics; mechanism of enzyme action and regulation of enzyme activity.

BCH 5941C Protein Biochemistry (3) Prereq: One semester of introductory biochemistry or consent of instructor. A comprehensive study of chemistry of amino acids, peptides, and proteins; protein structure; purification and analysis of proteins; protein turnover.


CHM 5150C Advanced Analytical Chemistry (3) Acid-Base, complexation, redox, and solubility equilibria treated at an advanced level; electrochemical methods of analysis, including potentiometric, coulometric, gravimetric, and conductometric methods. Statistical methods used in chemical analysis.

CHM 5151C Spectrochemical Analysis Methods (3) Spectrochemical information and measurements. Optical sources, transducers, and dispersive device used in atomic and molecular spectroscopy, nondispersive systems, multichannel analyzers, and multiplexing methods.

CHM 5155C Chemical Separation Methods (3) Modern filtration technology; distillation and extraction instrumentation and methods, and chromatographic instrumentation and methods including gas liquid, thin layer column, high performance liquid chromatography, and mass spectrometry.

CHM 5225C Advanced Organic Chemistry (3) Prereq: One year of undergraduate organic chemistry and consent of department. A survey of the major areas of contemporary organic chemistry, to include reaction mechanisms, reactive intermediates, molecular rearrangements, conformation analysis, and exercises in the synthesis of complex organic molecules.

CHM 5260C Physical Organic Chemistry (3) Prereq: Advanced Organic Chemistry. An intensive examination of molecular orbital theory and orbital symmetry; thermochemistry and thermochemical kinetics relations, to the study of reaction mechanisms; solvent and substituent effects on rates and equilibria; localized and delocalized bonding.

CHM 5380C Topics in Organic Synthesis (3) Prereq: Advanced
Master of Science in Physics

The Florida A&M University (FAMU) Department of Physics, in the College of Arts and Sciences, offers a program of study leading to a master of science in physics degree. This program is designed to provide a solid foundation in physics coursework (beyond the baccalaureate level) and research capability for pursuing doctoral studies in physics or related academic areas. The successful student will be prepared to enter the work force, or enter a high quality Ph.D. program. The M.S. program is also designed to facilitate research that will significantly contribute to the understanding of the physical universe.

The student may choose either a thesis or non-thesis program leading to the master of science in physics degree. The specialization area are: (1) experimental high energy and nuclear physics, (2) experimental fluid dynamics and plasma physics, (3) computational physics, (4) molecular physics, (5) quantum chemistry, (6) astrophysics, (7) experimental condensed matter physics, and (8) accelerator and laser physics.

Admission

Admission to the master of science in physics program is in conformity with the uniform requirements that the Board of Regents has established for the entire State University System of Florida. These include:

1. A 3.0 (on a scale of 4.0) cumulative grade point average covering the last 60 semester hours of undergraduate preparation, or a combined score of 1000 on the Verbal and Quantitative Sections of the Graduate Record Examination must be achieved;
2. The possession of a baccalaureate degree from an accredited institution of higher education;
3. Acceptance of undergraduate seniors into the master of science program is conditional upon their completion of all requirements for the baccalaureate degree before commencement of graduate studies;
4. In addition, other factors such as motivation, attitude, and potential for successful graduate work will be considered. These factors will be judged from at least two letters of recommendation from undergraduate physics instructors and/or personal interviews. Conditional acceptance into the graduate program may be granted as a result of these letters or interview when requirement 2 is not met. However, a student may not remain in the program for more than one semester with a conditional acceptance;
5. Foreign students whose native language is not English, must make a score of at least 550 on the TOEFL (Test of English as a foreign language).

Academic Requirements

The requirements consist of a set of core requirements and then separate requirements for the thesis and non-thesis programs:

Core Requirements

1. Completion of 24 semester hours of the core curriculum which consists of:
   - PHY 6246, 6247 Classical Dynamics I and Classical Dynamics II
   - PHY 6346, 6347 Electrodynamics I and Electrodynamics II
   - PHY 6524 Quantum Statistical Mechanics
   - PHY 6645, 6646 Quantum Mechanics I and Quantum Mechanics II
   - PHZ 6115 Mathematical Methods for Physics I
   These courses must be completed with at least a 3.0 grade point average (GPA);
2. A grade of 3.0 (out of 4.0) must be made on the departmental proficiency examination. This exam consists of a written examination given twice per year covering the content of an undergraduate program in basic physics. All first year graduate students must take the exam before or during their second semester of graduate study;
3. After completion of the requirements for a thesis or non-thesis program, the degree candidate shall be required to pass an oral examination of the master of science in physics core course work. The exam shall be set by the candidate's graduate committee which shall consist of four physics faculty members. If the student has completed a thesis, one committee member will be the candidate's thesis advisor and the
exam will also include a defense of the thesis. If the candidate is not a thesis student, the exam may also cover additional course work. The additional courses to be covered will be communicated by the committee to the student at least one month prior to the examination.

4. Every candidate is required to teach at least one undergraduate laboratory for one semester (PHY 6110).

Additional Non-Thesis Requirements

1. In addition to the 24 semester hours of core curriculum, 12 semester hours must be taken from Physics courses numbered 5000 and above with at least 9 taken on a letter grade basis.

Additional Thesis Requirements

1. In addition to the 24 semester hours of core curriculum, 9 semester hours must be taken from physics courses numbered 5000 and above with at least 6 semester hours taken on a letter grade basis.
2. The candidate must submit a thesis which is accepted by the thesis advisor and the thesis committee. Acceptance is given by way of signature.
3. No more than 3 semester hours of PHY 6918 credit and 3 semester hours of PHY 6110 credit may be counted toward the master of science in physics degree.
4. At least 3 semester hours of thesis credit (PHY 5971r) must be passed.

Doctor of Philosophy in Physics

The Florida A&M University (FAMU) Department of Physics, in the College of Arts and Sciences, offers a program of study leading to the doctor of philosophy in physics degree. The primary objective of the doctoral program in physics is to provide talented graduate students with a rigorous academic environment in which to conduct research and to develop the analytical, empirical, and leadership skills required for mathematical, scientific and technological careers. The program s specific goals focus on producing research physicists of the highest caliber.

The design of the Ph.D. program is such that it will complement the ongoing research at FAMU. The areas of specialty include (1) experimental high energy and nuclear physics, (2) experimental fluid dynamics and plasma physics, (3) computational physics, (4) molecular physics, (5) quantum chemistry, (6) astrophysics, (7) experimental condensed matter physics, and (8) accelerator and laser physics.

Admission

Admission to the Doctorate of Philosophy in Physics program is granted in conformity with the uniform requirements established by the State University System of Florida. These include: (1) the possession of a bachelor and/or master of science in physics degree from an accredited institution of higher education. Official academic transcripts are required; (2) a GPA of 3.0 on a scale of 4.0 covering the last 60 Semester Hours of undergraduate preparation and/or a GPA of 3.0 on all graduate work attempted, or a combined score of 1000 on the verbal and quantitative sections of the Graduate Record Exam; (3) have received two (2) strong letters of support from undergraduate or graduate faculty who are familiar with the applicant’s academic ability and work experience; and (4) Foreign students whose native language is not English, must make a score of at least 550 on the TOEFL.

Academic Requirements

A full-time student in the doctoral graduate program will take nine credit hours each Fall, Spring, and Summer term. A maximum of 90 credit hours or 72 hours for the minimum FAMU residence requirement and 18 hours of dissertation research activities is required for the Ph.D. in Physics. The average time to complete the physics doctorate is five years.

Admission with a Bachelor of Science Degree

(1) Student will take the advanced graduate laboratory and five (5) elective courses.
(2) Student will take written qualifying exam at the end of first year.
(3) Student will take additional elective courses to expand his/her knowledge in chosen specialty in the second year.
(4) Student will be required to successfully complete the Ph.D. candidacy or "A" exam after completing courses with a GPA of 3.00 or higher.
(5) Student must demonstrate proficiency in graduate-level classical mechanics, electrodynamics, and quantum mechanics in order to pass the candidacy exam.

Admission with a Master of Science Degree

(1) Student will be given the option of either writing the qualifying exam immediately upon entering the program or spending a year taking supplementary course work.
(2) Student will then join the Ph.D. program after passing the qualifying exam, M.S. at the second-year level.
(3) Each student, after passing the "A" exam, will then begin thesis research supervised by a faculty member.
(4) The student, upon successful completion of research, will then be required to take the "B" exam on his or her written dissertation.
(5) The oral defense will be conducted by a committee of three physics faculty: the research advisor and two faculty from different research specialties.
(6) Recommendation to either pass or fail a candidate will then be forwarded to the School of Graduate Studies and Research, which will award the Ph.D. in physics degree.

Course Descriptions

PHY 5909 Directed Individual Study (1-12): Individual study directed by graduate faculty on a topic of mutual student and faculty interest.
PHY 5920 Colloquium (1) Physics colloquia as scheduled.
PHY 5971r Thesis (3-6) Course to be taken while preparing the Master's thesis-supervised by the thesis advisor.
PHY 6110 Supervised Teaching (1-6): Supervised teaching practicum for physics graduate students. Individual assignments will be given in either the General Physics Lab, General Physics Recitation and/or College Physics Lab.
PHY 6157 Computation Physics (3): Computational methods of theoretical physics with applications to atomic, molecular, condensed matter, and many body physics.
PHY 6246 Classical Dynamics-I (3): Lagrange's and Hamilton's equations of motion, variational methods, symmetry, kinematics and dynamics of rigid body motion, special relativity, canonical variables and transformations.
PHY 6247 Classical Dynamics-II (3): Hamilton-Jacobi theory, small oscillations, continuous systems and theory of classical fields, non-linear dynamics and recent developments in chaotic dynamics.
PHY 6346 Electrodynamics-I (3): Electrostatics and magnetostatics, boundary-value problems in macroscopic media and dielectrics, electromagnetic waves and Maxwell's equations, conservation laws.
PHY 6347 Electrodynamics-II (3): Propagation of electromagnetic waves in wave-guides, resonant cavities and optical fibers, radiating systems, scattering and diffraction of electromagnetic waves, special relativity, dynamics of relativistic particles and electromagnetic fields, radiation by moving charges.
PHY 6480 Fluid and Plasma Physics I (3): Introduction to modern fluid physics including: ideal viscous, and non-equilibrium flow, thermodynamics and statistical mechanics of equilibrium plasmas; transport phenomena; high temperature hydrodynamics; kinetic equations, non-linear systems; and turbulence.
PHY 6524 Quantum Statistical Mechanics (3): Canonical structure and formulation of statistical mechanics, the thermodynamic limit, gas and liquid theory, phase transitions and critical phenomena, virial expansion, quantum statistics.
PHY 6646 Quantum Mechanics-II (3): Spin and other two dimensional systems, matrix mechanics, rotation group, symmetries, time independent or time dependent perturbation theory, atomic and molecular systems, Feynman diagrams, basic scattering theory.
PHY 6653 Advanced Collision Theory (3): Formal solutions of multi-channel scattering theory in both time-dependent and time-independent formalism. Approximations including Born, semi-classical, variational. Applications to simple atomic and molecular systems. Role of orientation and alignment on cross sections and other observable. Numerical techniques for computer programming and implementation.

PHY 6656 Quantum Theory of Angular Momentum (3): Angular momentum operators and wave functions, couplings of two angular momentum vectors, rotation transformations coupling of more than two angular momenta, spherical tensor operators, the rigid rotor model.

PHY 6668 Quantum Field Theory-I (3): Elementary relativistic quantum field theory: the Klein-Gordon field, the Dirac field, interacting fields and Feynman diagrams, elementary processes of quantum electrodynamics, introduction of radiative corrections, renormalization theory.

PHY 6669 Quantum Field Theory-II (3): The non-abelian gauge theories: the Parrot model of hadron structure, quantization of non-abelian gauge theories, quantum chromodynamics (QCD), gauge theories with spontaneous symmetry breaking, quantization of spontaneously broken gauge theories. Continuation of PHY 6668.


PHY 6815 Advanced Graduate Laboratory in Physics (3): Individualized work in experimental physics. There are over thirty experiments which represent early quantum physics, nuclear physics, condensed matter physics, monte carlo and stochastic processes, photonics, renewable energy source, bubble memory, electron spin resonance, atomic spectroscopy. Students are required to complete six experiments during the term.

PHY 6918R Supervised Research (1-9): Graduate student research supervised by the dissertation advisor. Available to graduate students who have passed the qualifying examination for the physics doctoral program and have not taken the advanced to candidacy examination for the doctorate in physics.

PHY 6938 Special Topics in Physics (2-4): Special topics is a faculty supervised study of advanced subjects in experimental and/or theoretical physics.

PHY 8966 Master's Comprehensive Examination (0): (SU grade): Course to be taken during semester in which the Master's comprehensive examination is to be taken.

PHY 8976 Master's Thesis Defense (0): Course to be taken during semester in which the Master's thesis defense is to be made.

PHY 8980 Doctoral Dissertation (1-9): The doctoral dissertation course is designed for physics graduate students who have successfully passed the qualifying and advancement to candidacy examinations; have finished all dissertation research requirements; and are in preparation for the dissertation defense.

PHZ 6115 Mathematical Methods for Physics-I (3): Analytical function theory, linear vector spaces, tensor calculus, function space, orthogonal polynomials, Fourier analysis and introduction to group theory.


PHZ 6136 Group Theory in Physics-I (3): Introduction to group theory: generators of continuous groups, orbital angular momentum, angular momentum coupling, homogenous Lorentz and inhomogeneous Poincare groups, symmetries and invariance principles.

PHZ 6137 Group Theory in Physics-II (3): Born-Oppenheimer approximation, rotational and vibrational molecular wave functions, multi-electron wave functions and operators, Hartree-Fock approximations, configuration interaction, pair and coupled pair theories, many-body perturbation theory.

PHZ 6156 Advanced Computer Methods in Physics (3): Introduction to computer operating systems and compilers, scientific programming, vector and parallel processing solutions to linear algebraic equations, Fourier transforms and spectral methods, boundary value problems, partial differential equations and graphical methods.

PHZ 6236 Theory of Atomic and Molecular Collisions (3): Classical and quantum scattering by central forces, phase shifts analysis and cross sections, elastic and inelastic scattering, multi-channel scattering theory, Schwinger, Kohn, and Newton methods, scattering in the laboratory and center of mass reference frames, fundamentals of experimental techniques, and selected topics from different collision theories: electron-atom, electron-molecule, atom-atom, atom-ion, and atom-molecule collisions.
school psychology track. Some of the courses overlap between the two tracks, while other courses are unique to the State certification requirements for school psychologists. Elective courses beyond the two required tracks are also available and further enhance the breadth and quality of the training curriculum.

To fulfill requirements for graduation, community psychology students must complete a minimum of 40 semester hours, including 31 hours of course work, an internship (one semester) and a research thesis. School psychology students must complete a minimum of 60 semester hours, including a minimum of 54 hours of course work and a 1,200-hour school psychology internship (two semesters). (Professional certification for school psychology in the State of Florida requires additional credit hours of professional education course work, some of which may be satisfied on the undergraduate transcript. This accounts for the difference in required credit hours between the two programs.)

Course Descriptions

Following is a listing of course descriptions in the community psychology curriculum.

Community Psychology

Required Courses

Research and Measurement: Six (6) Semester Credit Hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 6206 Psychological Statistics, Measurement and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>PSY 6216 Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>PSY 6064 Professional Seminar in Advanced General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PPE 6055 Seminar Theories of Personality</td>
<td>3</td>
</tr>
<tr>
<td>SPS 6191 Psychoeducational Assessment I</td>
<td>3</td>
</tr>
<tr>
<td>CLP 6166 Psychopathology</td>
<td>3</td>
</tr>
<tr>
<td>SPS 6206 Intervention Techniques</td>
<td>3</td>
</tr>
<tr>
<td>CLP 6445 Individual Personality Testing</td>
<td>4</td>
</tr>
<tr>
<td>CYP 6936 Seminar in Community Psychology</td>
<td>3</td>
</tr>
<tr>
<td>CYP 6938 Advanced Seminar in Black Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAB 6766 Advanced Applied Behavior Analysis</td>
<td>3</td>
</tr>
<tr>
<td>DEP 6105 Advanced Child Development</td>
<td>3</td>
</tr>
</tbody>
</table>

Culminating Courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYP 6948 Internship in Community Psychology</td>
<td>6-12</td>
</tr>
<tr>
<td>PSY 6971 Thesis</td>
<td>6-12</td>
</tr>
</tbody>
</table>

School Psychology

Professional School Psychology

Three (3) Credit Hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPS 6936 Seminar in School Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Psychological Foundations:

Fifteen (15) Semester Credit Hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLP 6166 Psychopathology</td>
<td>3</td>
</tr>
<tr>
<td>CYP 6938 Advanced Seminar in Black Psychology</td>
<td>3</td>
</tr>
<tr>
<td>DEP 6105 Advanced Child Development</td>
<td>3</td>
</tr>
<tr>
<td>PPE 6055 Theories of Personality</td>
<td>3</td>
</tr>
<tr>
<td>EDP 5136 Adolescent Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Assessment Foundations:

Eleven (11) Semester Credit Hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLP 6445 Individual Personality Testing</td>
<td>4</td>
</tr>
<tr>
<td>PSY 6317 Advanced Psychological Testing</td>
<td>3</td>
</tr>
<tr>
<td>SPS 6626 Psychoeducational Diagnosis</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHS 5215 Individual Personality Testing</td>
<td>4</td>
</tr>
<tr>
<td>MHS 5211 Psychoeducational Diagnosis and Prescription</td>
<td>4</td>
</tr>
</tbody>
</table>

Research and Measurement:

Six (6) Semester Credit Hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 6216 Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>PSY 6206 Psychological Statistics, Measurement and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>Interventions (Direct and Indirect): Nine (9) Semester Credit Hours from the following:</td>
<td></td>
</tr>
<tr>
<td>SPS 6206 Intervention Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MHS 5365 Group Therapy and Practice</td>
<td>3</td>
</tr>
<tr>
<td>MHS 5435 Theory and Techniques in Counseling or EAB 6766 Advanced Behavior Modification</td>
<td>3</td>
</tr>
<tr>
<td>MHS 5431 Consultation Skills</td>
<td>3</td>
</tr>
</tbody>
</table>

Educational Foundations:

Six (6) Semester Credit Hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 5051 Overviewing Educational Administration</td>
<td>3</td>
</tr>
<tr>
<td>EDF 5225 Elementary School Curriculum Design or ESE 5215 Secondary School Curriculum</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 5311 Advanced Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>EDF 5608 Sociological Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td>Supervised Practicum and Internship: Minimum of Ten (10) Semester Credit Hours:</td>
<td></td>
</tr>
<tr>
<td>PSY 6945 Practicum in School Psychology</td>
<td>4-12</td>
</tr>
<tr>
<td>SPS 6948 Internship in School Psychology</td>
<td>6-12</td>
</tr>
</tbody>
</table>

Community/School Psychology

Master of Science

The graduate programs in psychology provide students with academic, research and multicultural skills designed to prepare them for professional employment or doctoral level training. Within this context, the programs incorporate an emphasis on Black psychology and mental health of populations of African descent and persons of color. Content courses and experiential exposures are provided to implement this multicultural orientation.

Eligibility for admission to the graduate programs in psychology is based on standards established by the State University System. These standards include a minimum GPA of 3.0 (on a 4.0 system) over the last 60 semester hours of undergraduate study, or a minimum combined score of 1,000 on the aptitude sections of the Graduate Record Examination. Along with the application, official transcripts and standardized test scores, applicants must have three (3) letters of recommendation submitted on their behalf. The psychology department reviews and evaluates all applications to ensure satisfaction of the admission criteria. All applicants meeting the criteria are recommended for admission to the department chairperson and letters of acceptance are sent out after approvals from the deans of Arts and Sciences and Graduate Studies are obtained.

Students enrolled in the Community Psychology Track are required to complete a minimum of 40 semester hours, including 31 hours of course work, an internship (one semester) and a research thesis, in order to fulfill graduation requirements.

School Psychology Ed.S. Graduate Program

Educational Specialist Degree (Ed.S.) in School Psychology

The Ed.S. Degree in School Psychology prepares individuals to apply clinical and counseling psychology principles to the diagnosis and treatment of student academic and behavioral problems. Includes instructions in child and adolescent development, learning theory, psycho-educational assessment, observation and other procedures for assessing educational, personality, intelligence and motor skill development; therapeutic intervention strategies for students and families; identification and classification of disabilities and disorders affecting learning, behavior, and mental health; school psychological services planning; supervised clinical counseling practice; ethical standards; and applicable
regulations. The curriculum is designed to ensure candidates have a foundation in the knowledge base for psychology and education, including theoretical models, empirical findings, and practical techniques in each professional domain outlined by the National Association of School Psychology (NASP) and the Florida Department of Education (FDOE). Upon completion of the curriculum, candidates will demonstrate the professional skills necessary to deliver effective services that result in positive outcomes in each professional domain. All courses are consistent with professional standards outlined by the Florida Department of Education, National Council for Accreditation Teacher Education, and the National Association of School Psychologists. These national and state governing bodies provide standards which serve to guide the design of school psychology graduate education by providing a basis for foundational development and evaluation which meet quality standards. National requirements for Specialist-Level Programs (1.6-1.7) at the Specialist-level programs consist of a minimum of three years of full-time study or the equivalent at the graduate level. The School Psychology Program includes at least 82 graduate semester hours and one academic year of supervised internship experience, consisting of a minimum of 1200 clock hours. Students will earn the Master's of Science Degree after completing the 39 semester hours during the first year of training.

Professional School Psychology
Six (6) Semester Credit Hours Required from the following:
SPS6936 Seminar in School Psychology
SPS6931 Ethics and Law for School Psychology

Psychological Foundations
12 Semester Credit Hours Required from the following:
DEP 6105 Advanced Child Development
PPE 6055 Personality Theories
CYP 6938 Advanced Seminar in Black Psychology
SPS 6705 Neuro-Psychology of Behavior Disorders
EXB 6406 Advanced Foundations of Learning
DEP 6047 Development of Ethnic and Racially Diverse Children

Foundation Course Curriculum in Area of Specialization
Assessment Foundations
11 Semester Credit Hours Required from the following:
SPS6191 Psycho-educational Assessment I
SPS6192 Psycho-educational Assessment II
CLP6445 Individual Personality Testing
Interventions (Direct & Indirect)
18 Semester Credit Hours Required from the following:
SPS6206 Intervention Techniques I
SPS6704 Intervention Techniques II
EAB6766 Advanced Behavior Modification
EGCS4353 Theory & Techniques in Counseling
EGCS5565 Group Theory and Practice
EGCS5431 Consultation Techniques in Counseling
SPS6708 Crisis Management/Intervention
SPS6205 Advanced Consultation Techniques

Research and Measurement
Six Plus (6+) Semester Credit Hours Required from the following:
PSY6216 Research Methods
PSY6045 Psychological Statistics & Evaluation
PSY6971 Thesis or Research Project

Educational Foundations
12 Semester Credit Hours Required from the following:
EDAS051 Overviewing Education Administration
EDV510 Elementary School Administration
EDV5225 Elementary School Curriculum Design

ES5215 Secondary School Education
TXX 5700 ESOL
RED5336 Reading in the Content Area

Practicum in School Psychology
Minimum of three (3) Semester Hours
SPS6945 Supervised Practicum in School Psychology.

Supervised Internship
12 Semester Hours Required (Six (6) hours per semester)
SPS6948 Internship in School Psychology

Graduate Course Descriptions

CLP 6166 Psychopathology (3) Describes the major clinical syndromes from a multidimensional approach, with emphasis on a social learning approach. Presents a critical examination of DSM III and its implications for classifying psychopathology, particularly in multicultural/minority populations. (Lecture)

CLP 6445 Individual Personality Testing (4) Provides experience and knowledge of personality assessment. Includes theory, administration, scoring, and the interpretation of projective techniques, with a consideration of multicultural issues. Report writing is also emphasized. (Lecture, clinical laboratory demonstration)

CYP 6936 Seminar in Community Psychology (3) This seminar focuses on the application of clinical and psychological principles and procedures to multicultural community structures and settings. Social intervention and prevention models and consultation, evaluation, and social action research strategies will be emphasized, particularly as they relate to the mental health of African-American communities. (Lecture, field experience)

CYP 6938 Advanced Seminar in Black Psychology (3) In-depth study of theories and research concerning the nature of the black social reality in modern American society, as well as the nature and dynamics of black personality and black mental health. Emphasis will be given to theory and research that have grown out of recent black psychological literature. (Lecture)

CYP 6948 Internship in Community Psychology (9-12) Prereq: Supervised practical experience in agencies and institutional settings with a multicultural focus. (Field experience)

DEP 6047 Development of Ethnic and Racially Diverse Children (3) Examines the social-cultural, and historical context of child psychiatry in America and a discussion of the changing complexion of children in America.

DEP 6105 Advanced Child Development (3) Traditional and multicultural theories of human psychological development and related research will be treated, as well as current issues and developments in the field. (Lecture)

EAB 6766 Advanced Behavior Modification (3) Specific behavior change programs directed toward school and community. Emphasis on community control of behavior and changing the community as a means of changing behavior. Multicultural issues and application will also be considered. (Lecture, classroom and laboratory demonstration)

PPE 6055 Theories of Personality (3) Acquaints students with traditional and multicultural theories of personality, and their utility in understanding and explaining human behavior and mental health issues in contemporary American society. (Lecture)

PSY 6064 Proseminar in Advanced General Psychology (3) Intensive focus on three major substantive areas of psychology: History and Systems, Learning and Cognition, and Perception and Sensation. Emphasis on multicultural contributions and models, contemporary issues and research. (Lecture)

PSY 6206 Advanced Psychological Statistics, Measurement and Evaluation (3) Survey of descriptive and inferential statistics, methods for measuring and evaluating change in educational and community institutional programs, and cross-cultural issues in measurement and evaluation of behavior. Some usage of SPSS software analysis. (Lecture and computer
Master of Social Work

The mission of the Master's of Social Work (M.S.W.) program is to advance social and economic justice by educating students for knowledgeable and competent social work practice in urban and rural economic development and administration. This mission affirms the profession's historical commitment to promoting a just social and economic order, thereby ensuring equal opportunities for all persons, particularly members of oppressed populations, to achieve their full potential. The MSW program is committed to meeting the needs of at-risk populations in both urban and rural areas of the FAMU service area, as well as in the state of Florida, the nation, and the international community. The MSW program is accredited by the Council on Social Work Education (CSWE).

Admission Requirements

In evaluating applicants, the MSW Admissions Committee takes into consideration many factors and no one criterion alone automatically determines acceptance or non-acceptance into the program. Consideration is given to the following admission requirements:

1. A bachelor's degree from an accredited university or college.
2. A grade point average of 3.0 or better (A or 4.0 scale) for the last 60 hours of academic work. Students with a GPA of less than 3.0 but higher than 2.5 may be considered for "Special Student Status" admission.
3. A total Graduate Records Examination (GRE) with a score of at least 1000 Combined Verbal and Quantitative scores necessary to be considered for graduate financial assistance from the University.
4. Three letters of recommendation from persons who can address the applicant's ability and potential for graduate education and professional social work practice.
5. A personal narrative statement reflecting the applicant's academic and employment history, as well as a discussion regarding his/her interest in advanced social work practice.
6. Proficiency in English.
7. Completion of a Criminal Background and Abuse Registry Check, in accordance with the Florida Statute 943.0542 requiring that all students who work or volunteer with children, the elderly, and/or disabled persons complete and pass a criminal background check.
8. A current Florida State Immunization Record.
9. Completion of the "Certification of Eligibility Form" needed to assess the applicant's eligibility for various University financial aid packages.
10. A personal interview may be required of applicants to evaluate her/his potential for developing into a professional social worker.

Program Curriculum

The MSW program curriculum is carefully designed to comply with all of the accreditation standards mandated by the Council of Social Work Education (CSWE), our national accrediting body. Students are provided with the opportunity to benefit from intensive classroom instruction, enriching field placements, involvement in the community, and social work research projects currently being conducted by faculty members. The graduate curriculum enables students to gain professional knowledge, values and skills necessary to become competent leaders in the field of social work.

The first year of study is comprised of social work foundation coursework, while the second year focuses on advanced practice knowledge and skills. The curriculum infuses social work values and ethics, knowledge on human behavior and the social environment, issues of diversity, the promotion of social and economic justice, a focus on populations-at-risk, social work practice skills, social welfare policy analysis, development and implementation, social work research, and field experience opportunities throughout the two-year program. During the foundation year, the program provides students with the generalist perspective of social work in order to ensure graduates are equipped with the knowledge, values and skills needed to address social and economic inequalities, racism, classism, sexism, as well as other forms of oppression in the lives of individuals, families, groups, organizations and institutions.

After completing the foundation year, the student continues on to take coursework and field work in the program’s advance concentration in community development and administration.
Community Development and Administration Concentration

In the advanced year of the MSW program, emphasis is given to the role of community-based social service administration in the social change process. The concentration focuses on the development of administrative skills necessary to improve the responsiveness and effectiveness of organizations that serve the community. Students are introduced to a wide range of technical and interpersonal skills designed to enhance the maintenance, improvement, and responsiveness of social services organizations and service delivery systems to urban and rural communities. It further focuses on the development of requisite skills necessary for competent social planning, mobilizing communities and human service consumer groups, program development, resource development and management, and program evaluation. Graduates of the program are then equipped for positions as social service administrators, program designers, grant writers, program evaluators, social and economic community developers, consultants, and directors of their own agencies.

Faculty
Chairperson: Jamon, Brenda
Associate Professors: Halle, Barbara; Jamon, Brenda; Langley, Merlin
Assistant Professors: Nowak, Barbara
Field Director: Carter, Kevin

Foundation Curriculum

The following courses are required for all students enrolled in the MSW program:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOW 5106 Human Behavior and the Social Environment I</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5235 Social Welfare Policies and Programs I</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5404 Social Work Research I</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5341 Social Work Practice I</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5620 Dynamics of Oppression</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5107 Human Behavior and the Social Environment II</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5236 Social Welfare Policies and Programs II</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5343 Social Work Practice II</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5425 Social Work Research II</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5534 Field Practicum I</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5545 Field Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5535 Field Practicum II</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5546 Field Seminar II</td>
<td>3</td>
</tr>
</tbody>
</table>

Advanced Curriculum

The following advanced courses are taken after all requirements of the foundation year have been successfully completed:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOW 5334 Theories of Communities &amp; Organization</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5344 Community Development in Social Work Practice</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5386 Program Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5433 Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5536 Field Practicum III</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5547 Field Seminar III</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5387 Resource Development and Management</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5241 Advanced Social Welfare Policies and Programs</td>
<td>3</td>
</tr>
<tr>
<td>SOW 5539 Field Practicum IV</td>
<td>3</td>
</tr>
</tbody>
</table>

Graduate Course Descriptions

SOW 5106 Human Behavior and the Social Environment I (HBSE) (3) Prerequisites: Admission to graduate school or the permission of the instructor. This course lays the theoretical groundwork for social work practice with individuals and families. It provides the conceptual framework for the analysis of individuals and families using systems, developmental, cultural, and interactional frameworks in considering healthy and problematic functioning. Offered only in the Fall semester.

SOW 5107 Human Behavior and the Social Environment II (3) Prerequisites: SOW 5106 or the permission of the instructor. This course focuses on macro social work practice with an emphasis on social systems theories and the person-in-environment perspectives as frameworks for understanding how larger systems such as groups, organizations, and communities behave. Organizational and institutional responsiveness to the needs of oppressed populations are examined. Offered only in Spring semester.

SOW 5260 Dynamics of Oppression (3) Prerequisites: Admission to graduate school or the permission of the instructor. Theories of racism and oppression and how they relate to issues of social and economic justice are examined. Attention is specifically given to the various ways in which historically oppressed populations are impacted by discrimination in America. Offered in Fall and Summer semesters.

SOW 5235 Social Welfare Policies and Programs I (3) Prerequisites: Admission to graduate school or the permission of the instructor. The course introduces students to the historical development of social welfare policies and programs. The course also examines the historical development, mission, values, and ethics of the social work profession in addressing social problems. Offered only in the Fall semester.

SOW 5236 Social Welfare Policies and Programs II (3) Prerequisites: SOW 5235 or the permission of the instructor. This course provides content on social welfare policy formulation, frameworks for policy analysis, and the current status and accessibility of social welfare programs and its impact on historically oppressed populations. Examines the intended and unintended consequences of public and organizational policies on major social problems of poverty, racism, and gender inequality. Offered only in the Spring semester.

SOW 5341 Social Work Practice I (3) Prerequisites: Admission to the MSW Program and completion of, or concurrent enrollment in, SOW 5106. Focuses on social work practice with individuals and families. Emphasis is placed on generalist practice models of intervention, including case management, advocacy, brokering, brief counseling, education, solution-focused issue management, and crisis/trauma management within a diverse and multicultural society. Issues of social justice, social policy, ethical responsibilities, assessment and evaluation are integrated into practice models. Offered only in the Fall semester.

SOW 5342 Social Work Practice II (3) Prerequisites: Admission to the MSW Program, SOW 5341, and completion or concurrent enrollment in SOW 5107. Fundamentals of macro social work practice aimed at eliminating barriers to enhanced social functioning. Examines principles, theories, and skills of social work practice in groups, communities, organizations, and institutions. Principles of social planning, community development, and social action are incorporated. Offered only in Spring.

SOW 5404 Social Work Research I (3) Prerequisites: Admission to graduate school or consent of the instructor. This course focuses on the basic concepts and methods of scientific inquiry as utilized in building knowledge for social work practice. The course is intended to reinforce the objectives of the foundation curriculum by preparing students to follow the beginning steps of the generalist research process, including the development of a research question, conducting an exhaustive literature review, defining variables and their inter-relatedness, problem formulation, and report writing. Offered only in the Fall semester.

SOW 5535 Field Practicum II (3) Prerequisites: SOW 5534 and the written consent of the MSW Field Coordinator. Continuation of the foundation year MSW-supervised field experience in an approved social work setting. The field practicum must be taken concurrently with Field Seminar
SOW 5425 Social Work Research II (3) Prerequisites: SOW 5404. This course focuses on introducing the student to statistics commonly used by social workers in their practice, analyzing how statistical procedures can be used for decisions that are directly relevant to effective social work practice, policy, and research. Offered only in Spring.

SOW 5534 Field Practicum I (3) Prerequisites: Admission to the MSW program, successful completion of or concurrent enrollment in first year foundation coursework, and written consent of the MSW Field Coordinator. MSW-supervised field experience in an approved social work setting at the foundation-year level. The field practicum must be taken concurrently with Field Seminar I [225 clock hours].

SOW 5545 Field Seminar I (1) Prerequisites: Admission to the MSW program, successful completion of, or concurrent enrollment in, first year foundation coursework and Field Practicum I, and written consent of the MSW Field Coordinator. Focus on integrating knowledge, values, and skills in relation to the field experience.

SOW 5546 Field Seminar II (1) Prerequisites: Admission to the MSW program, successful completion of, or concurrent enrollment in, first year foundation coursework and Field Practicum II, and written consent of the MSW Field Coordinator. Focus on integrating knowledge, values and skills in relation to field experience.

SOW 5334 Theories of Communities and Organizations (3) Prerequisites: Successful completion of all foundation year coursework or consent of the instructor. Examination of advanced theories of community and organizational development, including the analysis of community and organizational functioning, its capacity to change, its bases of power, the enhancement of community and organizational effectiveness, and the building of organized efforts aimed at bringing about social and economic justice. Offered only in the Fall semester.

SOW 5344 Community Development in Social Work Practice (3) Prerequisites: Successful completion of all foundation year coursework; admission into the MSW program, and completion of, or concurrent enrollment in, SOW 5334. Focus on the utilization of community strengths in rebuilding at-risk urban and rural neighborhoods and communities. Students learn how to combine and mobilize community strengths in building stronger, more self-reliant and economically powerful communities. The course also focuses on how to incorporate public and private sectors in social and economic community development strategies in urban and rural areas. Offered only in the Fall.

SOW 5386 Program Design and Development (3) Prerequisites: Successful completion of all foundation year coursework; admission into the MSW program, and completion of, or concurrent enrollment in, SOW 5334. Examines program design and development of social service agencies and organizations. The course addresses the components of designing an effective program in a human service organization, conducting a needs assessment, planning, designing and tracking the intervention, and calculating the costs and values of the intervention. Offered only in the Fall semester.

SOW 5433 Program Evaluation (3) Prerequisites: Successful completion of all foundation year coursework or consent of the instructor. Provides students with the knowledge, values and skills required to measure and monitor the outcomes of social service programs and organizations. Students learn how to generate reports that can be effectively used by administrators and funding sources to determine the program’s efficiency and effectiveness, as well as ways to enhance its performance. Offered only in the Fall semester.

SOW 5538 Field Practicum & Seminar III (3) Prerequisites: SOW 5535 and SOW 5546, completion of, or concurrent enrollment in, SOW 5334, SOW 5344, SOW 5346, and SOW 5433, and written consent of the MSW Field Coordinator. Students are placed in approved MSW-supervised placement where they are engaged in a wide range of community development and administrative tasks where their advanced knowledge, values and skills may be applied [225 clock hours].

SOW 5387 Resource Development and Management (3) Prerequisites: Successful completion of all foundation year coursework; admission into the MSW program, and completion of, or concurrent enrollment in, SOW 5334. Application of theories related to writing and procuring grants, managing fiscal resources, budget evaluation, and fundraising methods. Particular attention is given to developing and applying resources to underserved urban and rural populations, particularly women, people of color and other historically oppressed groups, in an empowering manner. Offered only in the Spring semester.

SOW 5541 Advanced Social Welfare Policies and Programs (3) Prerequisites: Completion of all foundation year coursework or consent of instructor. Examination of the utilization of policies and programs by social service administrators to empower groups, communities and organizations. Students apply legal and social actions to a chosen social welfare issue; develop a policy to address it; and devise strategies to bring the policy to the field through organizational and potential channels.

SOW 5547 Field Seminar III (1) Prerequisites: SOW 5535 and SOW 5546, successful completion of, or concurrent enrollment in, SOW 5334, SOW 5344, SOW 5346, and SOW 5433, and written consent of the MSW Field Coordinator. Integration of advanced knowledge and skills applied in the field placement.

SOW 5539 Field Practicum IV (3) Prerequisites: SOW 5538 and SOW 5547, completion of, or concurrent enrollment in, SOW 5433, and written consent of the MSW Field Coordinator. Students continue with their advanced MSW-supervised placement where they engage in community development and administration tasks [225 clock hours].

MSW Program Electives

SOW 5523 Psychopathology (3) Prerequisites: Admission to the MSW program or consent of instructor. A course designed to prepare social workers to understand the medical model of mental health practice (e.g., DSM IV, mental health diagnoses, psychiatric treatment, medications, etc.) in order to communicate effectively with the multidisciplinary treatment team. Reviews psychodynamic personality theories and concepts of psychopathology which stem from them. Develops a frame of reference for critically analyzing mental health practice with oppressed populations and addressing the mental health needs of people of color, women, and other oppressed populations.

SOW 5372 Supervision, Staff Development and Consultation (3) Prerequisites: Admission to the MSW program or consent of instructor. Emphasis on the supervisory, consultation and staff development theories and skills necessary to nurture staff so they can function creatively, productively, independently and effectively. Comparative study of supervisory techniques with professionals, paraprofessionals and volunteers is undertaken.

SOW 5336 Rural Social Work (3) Prerequisites: Admission to the MSW program or consent of instructor. An overview of theory and practice issues related to disadvantaged individuals, families, groups, organizations, and communities in rural settings. Particular attention is given to addressing the needs of vulnerable populations living in small and rural areas.

SOW 5335 Empowerment (2) Prerequisites: Admission to the MSW program or consent of instructor. Theory, methods and skills necessary for building collaborative alliances with consumer/community systems in order to increase access to, and control of, needed individual, family, group, community and organizational resources. Emancipatory interventions and multicultural practice methods at the micro, mezzo and macro levels are emphasized.

SOW 5621 Women, Power, and Change (3) Prerequisites: Admission to the MSW program or consent of instructor. Designed to provide students with knowledge and understanding of women’s issues in relation to changing roles, sexism, racism, and empowerment at the individual, family, group, community, and organizational levels.

SOW 5349 Case Management (3) Prerequisites: Admission to the MSW program or consent of instructor. Provides knowledge regarding the historical development, processes and models for case management in the social services. Examines the comprehensive enhancement practice model of case management, the establishment of case management programs in social service systems, and methods for evaluation of case management programs.

SOW 5540 Field Practicum Elective I (1) Prerequisites: Admission to the MSW program and written consent of the MSW Field Coordinator. A one-credit practicum elective in which the MSW student is given the opportunity to extend, advance, and concentrate learning beyond the tasks required in the MSW field sequence. Requires 75 clock hours of field work in an approved MSW-supervised social work setting.

SOW 5541 Field Practicum Elective II (2) Prerequisites: Admission to the MSW program and written consent of the MSW Field Coordinator.
A two-credit practicum elective in which the MSW student is given the opportunity to extend, advance, and concentrate learning beyond the tasks required in the MSW field sequence. Requires 150 clock hours of field work in an approved MSW-supervised social work setting.

SOW 5542 Field Practicum Elective III (3) Prerequisites: Admission to the MSW program and written consent of the MSW Field Coordinator. A three-credit practicum elective in which the MSW student is given the opportunity to extend, advance, and concentrate learning beyond the tasks required in the MSW field sequence. Requires 225 clock hours of field work in an approved MSW-supervised social work setting.

SOW 5000 Directed Independent Study (1 - 6) Prerequisites: Admission to the MSW program, written consent of the sponsoring faculty member, and written consent of the MSW Program Director. An individualized research study of a social work issue conducted under the direction and supervision of graduate faculty. Requires a carefully laid out contract between the student and the sponsoring faculty member showing what will be studied, how the study will be carried out, the expected outcomes of the study, and the timetable for completion of the study.

SOW 5550 Special Topics in Social Work (1 - 6) Prerequisites: Admission to the MSW program and consent of the instructor. A variable content graduate course focusing on selected topics in social work and social welfare.

SOW 6428 The Professional Paper (1 - 6) Prerequisites: Written consent of a sponsoring faculty member and the approval of the MSW Program Director. A research paper involving the systematic investigation and critical analysis of a social work or social welfare-related issue. Requires a carefully laid out contract between the students and the sponsoring faculty member showing what specific topic is to be systematically investigated, the framework for analyzing the topic, the format for the research paper, and a timetable for completion of the investigation, analysis, and paper.

Degree Requirements
The MSWS degree program requirements consist of course work and a master's thesis. Students must:
a) maintain a grade of 3.0 (out of 4.0) in all courses in the curriculum,
b) select an area of research study, thesis advisor, and thesis committee during their second year of study,
c) submit a thesis accepted by the thesis advisor and the thesis committee, and
d) complete 33 hours of classroom courses.

A recommended schedule of courses is listed below.

Year One
Fall Term
* CISS5025 Programming Languages
* CENS5075 Software Systems Engineering
* COTS5300 Theory of Formal Languages and Automata

Year One
Spring Term
* CENS5016 Formal Methods
* CENS5064 Advanced Systems Design
* Elective

Year Two
Fall Term
* CENS5015 Software Development and Maintenance
* COP5614 Operating Systems
* Elective

Year Two
Spring Term
* CENS5055 Software Project Management
* CENS5070 Software Verification and Validation
* CISS5970 Thesis

Course Descriptions
CISS5025 Programming Languages Prereq: CDA 3101 or equivalent, COP2532 or equivalent, and COP 4020 or equivalent. Provides a course in language theory, grammars, syntax, and semantics. Scanners, symbol tables and the pragmatics of implementation used to develop software.

COTS5310 Theory of Programming Languages and Automata Prereq: COT3100 or equivalent and COT 4210 or equivalent. Gives a formal background in computer theory and programming languages including the basis of languages and programming, logical networks and switching theory, sequential theory and automata, and Turing machines and computability. Foundations of automata, formal languages of recursion theory.

COP5614 Operating Systems Prereq: CDA 3101 or equivalent; COP2532 or equivalent and COP 3610 or equivalent. Provides a study of computer operating systems which are the primary resource managers of computer hardware. The main features provided by these operating systems such as process management, storage management, processor management, and auxiliary storage management are studied in detail. Related topics of networking and security are introduced. Case studies of representative commercial operating systems is included. Laboratory use of the computer is an integral part of this course.

CENS5075 Software Systems Engineering Prereq: CISS4301 or equivalent. Exposes students to development of software systems at a high level, introduces systems aspect of development and related trade-offs. Exposes students to requirements analysis and techniques to develop a system from requirements.

CENS5016 Formal Methods of Software Engineering Prereq: COT3100 or equivalent. Exposes students to the use of specification that have well defined semantics. Covers classes of specification models, including algebraic, state machines and model-theoretic approaches. Reviews verification methods such as weakest pre-condition and functional correctness.

CENS5064 Advanced Systems Design Principles Prereq: CENS5075. Provides a course of theoretical principles of software design and teaches advanced concepts, models and algorithms valuable to systems designers. Topics are comparison of design methods and techniques and the principles of network communications database, security, real-time and graphical design issues.
CENS 5015 Software Development and Maintenance Prereq: CENS 5064. Covers design, implementation, and maintenance (changing) of software. Various methods and languages are used in these activities.

CENS 5070 Software Verification and Validation Prereq: CENS 5064, CENS 5016. Covers theory and practice of ensuring high quality software products. Topics include evaluation of software for efficiency, performance, reliability, and correctness. Specific skills of program proving, code inspection, unit level testing, and system level testing are included.

CENS 5055 Software Project Management Teaches process considerations in software engineering. Provides advanced material in software project planning, monitoring and controlling mechanisms, and leadership and team building.

CIS 5930 Special Topics in Software Engineering (Elective). Introduces students to current topics in software engineering. Topics are announced as the course is taught.

CIS 5935 Introduction to Research Introduces students to research principles such as literary searches, library usage and basic research techniques.


---

**College of Engineering Sciences, Technology and Agriculture**

**Graduate Faculty**

Professors: Anderson, Lee E.; Bradford, Robert R.; Flowers, Ralph W.; Gardiner, Cassel S.; Hsieh, Yuch P.; Hubbard, Michael; Leong, Stephen; Muchow, James; Olorunniwa, Zach; Ogheghomie, Onokpise; Pancholy, Sunil K.; Pescador, Manuel L.; Phillips, Bobby R.; Shih, Mehboob B.; Smith, John P.; Thomas, Verian D.; Wright, Charles.

Associate Professors: Bellamine, Thomas; Ablom, Kenneth; Cheng, Bin-Ho; Colow, Violetta; Duke, Edwin; Edlow, Diana; Cade, James; Hight, Stephen; James, Neil A.; Legaspi, Jesusa; Lorenzo, Alfredo; Lu, Jiang; Peterson, John; Reitz, Stuart; Thomas, Michael; Worthen, Dreamal J.; Zhong, Harry.

Assistant Professors: Anglade, Yves; Mbuya, Odemari; Musingo, Mitwe; Peterson, John.

Agricultural Sciences

Master of Science

**Description**

The Division of Agricultural Sciences in the College of Engineering Sciences, Technology and Agriculture presently offers the master of science degree program in agricultural sciences. Candidates will be required to successfully complete a minimum of thirty-six (36) semester hours, including six hours of thesis. The degree requires a minimum of approximately eighteen calendar months for its completion. The present areas of concentration are: Agribusiness, Animal Science, Enology and Viticulture, Entomology, Environmental Science, Food Science, and Plant Science.

The curriculum of the master's program is structured so that students may expand their knowledge in selected areas of agriculture instead of specializing in any one field. However, the research performed by these students will be specific in nature and it will be supervised by agriculture faculty members in their areas of expertise. The students will receive in-depth training in modern agricultural research methods and effective transfer techniques for current agricultural and food science information and technological advances.

**Admission Requirements**

For admission to the master's program, the candidate must have received a bachelor's degree in agriculture or a related field. The candidate must also satisfy the University's regulation of a GPA of 3.0 in the junior and senior years of the undergraduate program or a score of 1,000 (verbal and quantitative) or better on the GRE. International applicants whose native language is not English shall be required to present a score of 500 on the test of English as a Foreign Language (TOEFL). Students must maintain a GPA average of 3.0 or better and must have a "B" or better in all core courses.

**Agribusiness**

The academic program for the Master's of Science in Agricultural Sciences with an emphasis in Agribusiness, is as follows:

I. Select the following required courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Sem. Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGG 5825</td>
<td>Fundamentals of Research Design</td>
<td>4</td>
</tr>
<tr>
<td>AGG 5931</td>
<td>Professional Seminar</td>
<td>3</td>
</tr>
<tr>
<td>+AGG 5920</td>
<td>Colloquium (repeated)</td>
<td>0</td>
</tr>
</tbody>
</table>

II. Select one of the following core courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Sem. Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGR 5445</td>
<td>Advanced Plant Sciences</td>
<td>3</td>
</tr>
<tr>
<td>ANS 5205C</td>
<td>Advanced Animal Production</td>
<td>3</td>
</tr>
<tr>
<td>SOS 5217</td>
<td>Soil and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>PMA 5407C</td>
<td>Integrated Pest Management</td>
<td>3</td>
</tr>
<tr>
<td>FOS 5314</td>
<td>Advanced Food Processing &amp; Storage</td>
<td>3</td>
</tr>
</tbody>
</table>

III. Select all of the following core courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Sem. Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEB 5307</td>
<td>Agricultural Marketing and Finance</td>
<td>3</td>
</tr>
<tr>
<td>AEB 5335</td>
<td>Advanced Agricultural Price Analysis</td>
<td>3</td>
</tr>
<tr>
<td>AEB 5555</td>
<td>Econometrics</td>
<td>3</td>
</tr>
<tr>
<td>AEB 5375</td>
<td>Market Research and Survey</td>
<td>3</td>
</tr>
<tr>
<td>AEB 5185</td>
<td>Advanced Agricultural Production</td>
<td>3</td>
</tr>
</tbody>
</table>

IV. AGG 5976 Master's Thesis

The candidate must complete and successfully defend an original thesis.

V. Approved electives, including courses in the area of concentration

<table>
<thead>
<tr>
<th>Total</th>
<th>Sem. Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Total: 36

Entomology

The academic program for the Master of Science in Agricultural Sciences with an emphasis in Entomology is as follows:

I. College Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Sem. Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGG 5825C</td>
<td>Fundamentals of Research Design</td>
<td>4</td>
</tr>
<tr>
<td>AGG 5931C</td>
<td>Professional Seminar</td>
<td>3</td>
</tr>
<tr>
<td>AGG 5920</td>
<td>Colloquium</td>
<td>0</td>
</tr>
</tbody>
</table>

II. Major Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Sem. Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENY 5155C</td>
<td>Systematic Entomology</td>
<td>3</td>
</tr>
<tr>
<td>ENY 5355C</td>
<td>Insect Morphology</td>
<td>4</td>
</tr>
<tr>
<td>EVR 6064</td>
<td>Principles of Ecology</td>
<td>3</td>
</tr>
</tbody>
</table>

III. Approved Electives not in Area of Concentration

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Sem. Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMA 5407C</td>
<td>Integrated Pest Management</td>
<td>3</td>
</tr>
<tr>
<td>ENY 6215</td>
<td>Biological Control of Weeds</td>
<td>3</td>
</tr>
<tr>
<td>ENY 5101C</td>
<td>Principles of Animal Taxonomy</td>
<td>4</td>
</tr>
<tr>
<td>ENY 5500</td>
<td>Aquatic Entomology</td>
<td>3</td>
</tr>
<tr>
<td>ENY 6663</td>
<td>Medical Entomology</td>
<td>3</td>
</tr>
<tr>
<td>AGG 5910</td>
<td>Supervised Research</td>
<td>1-3</td>
</tr>
</tbody>
</table>
IV. Approved Electives not in Area of Concentration\textsuperscript{3} ............................................ 3-10

V. Master's Thesis .................................................................................................................. 6
Total Credit Hours .................................................................................................................. 36

Nine (9) credits per semester X 2 years = 36 (plus at least one (1) credit per summer if on assistantship)

1. Major requirement may be exempted upon approval of a student’s Thesis Committee and credits satisfied by taking additional electives.

2. Other approved Ecology courses include: Environmental Ecology (PCB 5045), Ecological Processes (PCB 5046), Marine Ecology (PCB 5314), Terrestrial Ecology (PCB 5325), Advanced Plant Pathology (BOT 5604).

3. Non-Major Electives may include (but are not limited to) the following:

AEB 5185 Advanced Agricultural Production ................................................................. 3
ANS 5205C Advanced Animal Production ..................................................................... 3
FOS 5314 Advanced Food Processing and Storage ............................................................. 3
AGR 5445 Advanced Plant Sciences .................................................................................. 4
AGR 5900 Directed Individual Study .................................................................................. 1-4
EVR 5063 Elements of Environmental Biology ............................................................... 4
PHC 6000 Epidemiology ..................................................................................................... 2
BOT 5937 Selected Topics in Plant Biotechnology ............................................................. 3
SOS 5217 Soil and the Environment ................................................................................... 3
FRC 5805C Viticulture ......................................................................................................... 4

Food Science

The academic program for the Master’s of Science in Agricultural Sciences with an emphasis in Food Science, is as follows:

I. Select the following required core courses ..................................................................... Sem. Hrs.
AGG 5825 Fundamentals of Research Design ................................................................. 4
AGG 5931 Professional Seminar ....................................................................................... 3
AGG 5920 Colloquium (repeated) ...................................................................................... 0

II. Select one of the following core courses

AGR 5445 Advanced Plant Sciences .................................................................................. 3
ANS 5205C Advanced Animal Production ..................................................................... 3
SOS 5217 Soil and the Environment ................................................................................... 3
PMA 5407C Integrated Pest Management ....................................................................... 3
AEB 5185 Advanced Agricultural Production ................................................................. 3

III. Select a minimum of 15 credit hours of the following core courses

FOS 5314 Advanced Food Processing & Storage ............................................................... 3
FOS 5315 Advanced Food Chemistry .................................................................................. 3
FOS 5325 Advanced Food Analysis ..................................................................................... 3
FOS 5930 Seminars in Food Science ................................................................................... 3
FOS 5226 Advanced Food Microbiology & Safety ............................................................. 3
FOS 5906 Directed Individual Study .................................................................................. 1-6
FOS 5940 Practical Food Experience .................................................................................. 3
FRC 5805C Enology ............................................................................................................. 4
FOS 5245 Meat Science and Meat Research ..................................................................... 4

IV. AGG 5976 Master's Thesis .......................................................................................... 5
(The candidate must complete and successfully defend an original thesis. Approved electives, including courses in the area of concentration or related areas ................................................................. 6
Total Credit Hours ............................................................................................................. 36

Animal Science

The academic program for the Master’s of Science in Agricultural Sciences with an emphasis in Animal Science, is as follows:

I. Select the following required core courses .................................................................. Sem. Hrs.
AGG 5825 Fundamentals of Research Design ................................................................. 4
AGG 5931 Professional Seminar ....................................................................................... 3
AGG 5920 Colloquium (repeated) ...................................................................................... 0

II. Select one of the following core courses

AEB 5185 Advanced Agricultural Production ................................................................. 3
AGR 5445 Advanced Plant Sciences .................................................................................. 3
EVR 5063 Elements of Environmental Biology ............................................................... 4
FOS 5314 Advanced Food Processing & Storage ............................................................. 3
PMA 5407C Integrated Pest Management ....................................................................... 3
SOS 5217 Soil and the Environment ................................................................................... 3

III. Select all of the following core courses

ANS 5202 Monogastric Farm Animals .............................................................................. 3
ANS 5205C Advanced Animal Production ..................................................................... 3
ANS 5447 Ruminant Nutrition .......................................................................................... 4
ANS 5454 Animal Science Experimentation .................................................................... 3
ANS 5446 Advanced Animal Nutrition ............................................................................ 3

IV. Approved Electives ...................................................................................................... 4-5

V. AGG 5976 Master's Thesis ......................................................................................... 6
(The candidate must complete satisfactorily complete and successfully defend an original thesis.)
Total Credit Hours ............................................................................................................. 36

Plant Science

The academic program for the Master’s of Science in Agricultural Sciences with an emphasis in Plant Science is as follows:

I. Select the following required core courses ................................................................. Sem. Hrs.
AGG 5825 Fundamentals of Research Design ................................................................. 4
AGG 5931 Professional Seminar ....................................................................................... 3
*AGG 5920 Colloquium (repeated) .................................................................................. 0

II. Select one of the following core courses

ANS 5205C Advanced Animal Production ..................................................................... 3
SOS 5217 Soil and the Environment ................................................................................... 3
PMA 5407C Integrated Pest Management ....................................................................... 3
AEB 5185 Advanced Agricultural Production ................................................................. 3

III. Select all of the following core courses

AGR 5222C Plant Breeding ............................................................................................... 4
AGR 5445 Advanced Plant Science .................................................................................. 3
AGR 5616 Seed Science and Technology ......................................................................... 3
BOT 5506 Advanced Plant Physiology .......................................................................... 3
FOS 5314 Advanced Food Processing & Storage ............................................................. 3

IV. AGG 5976 Master's Thesis .......................................................................................... 6
(The candidate must complete and successfully defend an original thesis.)
V. Approved electives, including courses in
the area of concentration or related areas. .................................. 4

Total Credit Hours ................................................................. 36

Course Descriptions

ABE 5185 Advanced Agricultural Production (3) Prereq: Basic knowledge of differential and integral calculus. Emphasis on production theory and the theory of the firm. Technical aspects of agricultural production dealing with input-output, input-input, output-potential production cost, etc.

ABE 5307 Agricultural Marketing and Finance (3) Application of concepts and theories to facilitate financial analysis of agricultural production; capital theory and investment analysis; risk theory and portfolio analysis. Liquidity management; policy issues in agricultural financial marketing concepts, strategies, management and organizational requirements of marketing agriculture products. By permission only.

ABE 5335 Advanced Agricultural Price Analysis (3) Application of economic theory and statistical techniques to study price determination and methods used to analyze factors affecting agricultural prices; analysis of agricultural prices movements with respect to space, time and form; and examination of empirical and analytical methods used in price forecasting and techniques of time series analysis. By permission only.

ABE 5375 Market Research and Survey Sampling (3) Prereq: An introductory statistics course. Marketing research methods used to evaluate market potential, problems and marketing decisions. Course includes sampling techniques of data collection and analysis. Selected non-parametric statistical techniques issued to illustrate research methods and statistical inference of market data. By permission only.

ABE 5555 Econometrics (3) Application of econometric and a linear algebra course. Emphasis on social and behavioral sciences research problems. Empirical research methods in estimating the basic linear model and hypothesis testing, statistical inference and problems involved in regression analysis and extensions of the general linear model. By permission only.

AGC 5900 Directed Individual Study (1-4) Independent study or research under the supervision by faculty members. May be repeated up to a maximum of six hours. By permission only.

AGC 5910 Supervised Research (1-3) Students collect and analyze data on particular subject, under the supervision of a member of the area staff (not to exceed 6 semester hours). By permission only.

AGC 5920 Colloquium (0)

AGG 5930 Special Topics in Agricultural Science (1-4) Topics in agricultural sciences showing an interrelationship between subject matter areas. Content and credit may vary. May be repeated up to a maximum of six semester hours. By permission only.

AGG 5931 Professional Seminar (3) This course is designed to prepare students to understand and evaluate scientific research and provide the opportunity for them to plan and conduct research with the guidance of other professionals in the field.

AGG 5976 Master's Thesis (1-9) The student selects a topic in consultation with his advisor, collects data, writes and defends a thesis. By permission only.

AGR 5234 Forage Crops (4) Detailed study and agronomic characteristics of tropical and temperate improved and rangeland forage species; function and use of improved pastures and natural grassland in animal production systems.

AGR 5232 Plant Breeding (4) Plant improvement, methodologies for breeding field crops and horticultural crops will be discussed; cultivar development and multiplication of assexually propagated crop species, new plant breeding techniques such as plant cell selection, applications of haploidy and genetic engineering.


AGR 5616 Seed Science and Technology (3) Examination of basic metabolic processes related to seed development, maturation, dormancy and germination. Post-harvest processing, curing and storage of seeds, and its effects on seed quality. Principles and practices in pure seed production and crop and weed seed identification. Laboratory methods in seed testing, certification, laws for marketing seeds. By permission only.

ANS 5202 Monogastric Farm Animals (3) Prereq: ANS 3006. A comprehensive study of monogastric animals on the farm, mainly swine and equine as related to breed, reproduction, feeds and nutrition, production, health and sanitation, management, and marketing.

ANS 5205C Advanced Animal Production (3) Prereq: ANS 3006. Survey of the latest systems of production and the use of modern technology in breeding, feeding and managing meat animals. Emphasis will be on the anatomical and physiological systems of the animal and their relationships to efficient livestock production.

ANS 5446 Advanced Animal Nutrition (3) Prereq: ANS 4445. The thrust of this course is to integrate the physiology and biochemistry of protein, carbohydrate, lipid, vitamin and mineral metabolism in the whole animal.

ANS 5447 Ruminant Nutrition (3) Prereq: ANS 4445. Physiological and microbiology of ruminant digestion, biochemical process in the utilization of absorbed nutrients and the manipulation of biochemical processes to improve/enhance animal productivity.

ANS 5454 Animal Science Experimentation (3) Prereq: ANS 3006; ANS 4445. Discussion and application of laboratory procedures frequently used in nutrition and physiology research. Introduce students to various analytical procedures including analysis, surgery, collection and handling of blood and tissues and hormones/enzymes measurements. By permission only.

BOT 5506 Advanced Plant Physiology (3) Prereq: Plant Physiology, Organic Chemistry (two semesters). This course focuses on a detailed investigation of plant biochemistry, metabolism, and physiology. Nitrogen fixation, nutrient translocation, juvenility, photo-periodism, vernalization, germination and dormancy will be covered.

BOT 5604 Advanced Plant Ecology (3) A study of the environmental conditions controlling plant growth, response of plants to their habitat, a study of the climatic, physiographic, edaphic, and historic factors of the environment in relation to plant growth.

BOT 5937 Selected Topics in Plant Biotechnology (3) Prereq: Basic knowledge of plant biology. Advanced plant and cell culture, using plant tissue and culture for crop improvement, genetic transformation, plant genome organization, structure and properties of DNA. Recombinant DNA procedures and associated methods; genome mapping, genome mapping and gene mapping and breeding.

ENG XXXX Construction Technology and Management III (3) Presents the theory and practice pertaining to the construction projects. The roles of designer, owner, general contractor, and construction manager are outlined. Real world problems are part of the course.

ENG XXXX Construction Technology and Management I (3) The course deals with the issues in construction management. Topics include strategic planning in construction, planning for productivity, factors affecting productivity, productivity analysis, and the means to improve productivity.


ENV 5150 Systematic Entomology (3) Prereq: General Entomology. Recognition of all major families of insects in North America. Laboratory class featuring microscopic study of specimens.


ENV 5227C Advanced Urban Entomology (3) Prereq: ENY 4229. Biology, ecology, identification, and management of pest organisms associated with people, structure and the urban environment. Emphasis on economic importance and control strategies for arthropod pests commonly invading households and commercial structures in urban environments.

ENV 5355 Insect Morphology (4) Prereq: ENY 3004. Comprehensive study of the external and internal anatomy of the major groups of insects, with some considerations of physiology.

ENY 6215 Biological Control of Weeds (3). Prereq: ENY 3004 or consent of instructor. Students are encouraged to have taken insect ecology and insect classification. Principles of biological control of weeds will be presented and discussion of terrestrial and aquatic weeds will be emphasized. Invertebrate control agents will be discussed. Invertebrate agents will be emphasized, but vertebrates and pathogens also will be discussed. A term paper will be assigned for completion during the semester, and a one-hour seminar will be required on the same topic. There will be one or more field trips to biological control facilities in Florida.


ENY 6655C Insect Toxicology (3). Prereq: CHM 2210, ENY 3004C. Classification and properties of major types of insecticides, chemistry, formulation, toxicity, metabolism and mode of action, selectivity, use hazards, residues, environmental problems, biological magnification, persistence and effects on non-target organisms. Emphasis on target site physiology, biochemistry and molecular biology, pharmacodynamics, metabolism and the development of resistance.

EVR 5063 Elements of Environmental Biology (4) Prereq: BSC 1011 or equivalent. Aspects of environmental biology at the biochemical and cellular level. Selected topics in cell structure and function, biochemistry, genetics, genetics at the molecular chromosomal level, embryology, blood and its function as well as coverage of green plant biology. Finally aspects of integration between plants, animals, and the environment will be presented. Lectures and laboratory.

FOS 5226 Advanced Food Microbiology and Safety (3) Prereq: FOS 4222C. Food production, spoilage, preservation, sanitation and poisoning. Bioprocessing, public health significance, safety aspects related to food production and safety. Current literature reviews on topical issues in these areas. By permission only.

FOS 5135 Meat Science and Meat Processing (4) Physical and chemical characteristics of meat and meat products, meat processing methods, and testing and identification. By permission only.

FOS 5428 Advanced Food Processing and Storage (3) Prereq: FOS 4311. Study of and justification of food processing methods used in preservation of major food commodities. Principles of all the different methods with laboratory demonstration. Relationship of these methods to 'future foods'. By permission only.

FOS 5315 Advanced Food Chemistry (3) Prereq: FOS 4311. In this class the focus will be on the chemical composition of foods as related to food properties and function. Reaction mechanisms, interrelationships, and chemical processes affecting food quality from raw to processed states. By permission only.

FOS 5325 Advanced Food Analysis (3) Prereq: FOS 4321C. Advanced application of physical and chemical analytical methods for the quantitative determination of various food constituents and additives. Fundamental concepts underlying food analysis, comparison and justification of research methodologies. By permission only.

FOS 5906 Directed Individual Study (1-6) Individual study or research in food science under the supervision of faculty member. By permission only.

FOS 5930 Seminars in Food Science (1) Discussion of high priority food research areas which includes extensive library research, critical evaluation and class presentation. By permission only.

FOS 5940 Practical Food Experience (3) Supervised attachments at various food institutions in the research areas primarily. Student gets an exposure to equipment, methodologies and production principles. By permission only.

FRC 5805C Viticulture (4) Introduces the students to the art and science of grape growing. The history of grape production and utilization, is discussed with emphasis on North American and Florida grapes. A comprehensive survey of modern grape production practices is augmented with discussions of grapevine development, morphology and physiology of flowering and fruit maturation. Field experience in vineyard management will be provided. By permission only.

FRC 5808C Enology (4) Introduces the student to the origin and practices of enology; yeast fermentations and fruit processing. The course includes discussions on the chemistry of fermentation reactions, compositional evaluations, utilization and preservation of fermented beverages. Principles and products as related to grape cultivars used, and vinification technology employed. Use of Southeastern grapes is highlighted. By permission only.

HUN 5249 Advanced Human Nutrition (3) Prereq: HUN 2401 or FOS 3342. Topical issues in human nutrition research and relationships to food science.

PMA 5407C Integrated Pest Management (3) Prereq: General Entomology. An introduction to integrated pest management (IPM) dealing with theoretical and applied aspects of modern pest control strategies. The course consists of lectures and is divided into four sections. History of pest control and philosophy of IPM, modern pest control strategies, case histories of IPM programs. By permission only.

SOS 5217 Soil and the Environment (3) Prereq: Undergraduate physical sciences, mathematics, and basic soil sciences. Interpretation of soil chemical, physical, morphological and biological properties; information extraction from published soil survey data; laboratory analyses and testing of soils; soil classification and engineering applications; agricultural land classifications; soils and water conservation; and sustainable agroecosystems.


SOS 5405C Soil Chemistry (3) Prereq: General Chemistry, General Soils. The inorganic and organic constituents of soils. The chemical and physical properties of soil colloids, ions exchange, soil absorption and electrochemical phenomena in soil. By permission only.

Doctor of Philosophy in Entomology (in affiliation with the University of Florida)

Florida is unique as it is the only state having 1862 and 1890 Land-Grant Universities with established entomology programs, and Florida A&M University is the only Historically Black Land-Grant University that offers a B.S. and M.S. degree in entomology. Cooperation between the two Universities in developing this innovative minority program represents a historic achievement in the profession of entomology and a landmark in higher education for both Universities. The cooperative Ph.D. in entomology program received strong support from a number of state and national societies, government agencies and industrial leaders.

Professors at Florida A&M University offer a broad spectrum of aquatic, agricultural, medical and veterinary entomology courses in Tallahassee and the research laboratories on the main campus and at the John A. Mulhernan, Sr. Anthropod Research Laboratory in Panama City are available for thesis research. A Ph.D. student can take course work both universities depending on their interests and their major professor can be any regular faculty member at either university.

As this degree is directed towards African-Americans, women, and other minorities, each Ph.D. curriculum will be designed to meet the specific needs of each student. Scholarships and assistantships are available.

The graduate admission requirements for the cooperative Ph.D. in entomology are:

1. The student shall have earned a graduate degree from an accredited institution or shall have earned a 3.0 GPA or better in all work attempted while registered as an upper division student working for a baccalaureate degree.
2. The student shall have a total Quantitative-Verbal Graduate Record Examination (GRE) score of 1,000 or higher or an equivalent score on an equivalent measure approved by the Board of Regents. All applicants to graduate programs in the State of Florida must submit a GRE score even if the GRE has been waived.
3. International students whose native language is not English shall score 550 or better on the Test of English as a Foreign Language (TOEFL).
4. The student shall request three letters of recommendation from individuals in a position to evaluate the student as a potential graduate student.
5. The student shall provide a personal and professional goal statement. This is a one page statement relating to the student's background, training, experience and proposed educational goals.
6. The student shall submit transcripts from all institutions of higher learning attended.
7. The student must have a major professor prior to being admitted for graduate studies.

A minimum of 90 semester credits beyond the B.S. degree is required to obtain the cooperative Ph.D. degree. A maximum of 30 graduate credits may be transferred into a cooperative Ph.D. program from other universities.

If a minor is taken, at least 12 credits in the minor subject are required, all of which must be courses 5000 and above. If two minors are taken, at least eight credits in each are required.

It is policy that all cooperative Ph.D. students will take statistics through at least a beginning graduate course (STA 6166 or equivalent) and at least a beginning biochemistry course at the undergraduate level. Doctoral students will be held responsible for a broad range of basic knowledge in their discipline. The qualifying examination includes questions on morphology, physiology, taxonomy, ecology and applied entomology.

Further information can be obtained from the Coordinator for the Cooperative Ph.D. in Entomology, Florida A&M University, Tallahassee, Florida 32307, Telephone (850) 599-3912, Fax (850) 599-8864.

Course Descriptions

ENY 6135 Taxonomy of the Major Orders of Holometabola (4)
PreReq: General Entomology. Identification of families of orders Coleoptera, diptera, Hymenoptera, and Lepidoptera; field tropicking techniques, and common holometabolous families in North Florida ecosystems.

ENY 6166 Principles of Animal Taxonomy (3)
PreReq: General Entomology or Biology. Principles involved in taxonomy and classification of animals; modern systematic techniques.

ENY 6215 Biological Control of Weeds (3)
PreReq: General Entomology. Principles of biological control of weeds. Examples of terrestrial and aquatic weeds currently being treated or under study for treatment with biological control agents. Invertebrate agents will be emphasized and vertebrates and pathogens will be discussed. A term paper and a one-hour seminar on the topic are required. One or more field trips to biological control facilities in Florida.

ENY 6505 Aquatic Entomology (3)
PreReq: General Entomology or Invertebrate Zoology. Abundance, diversity and function of aquatic insects in freshwater ecosystems, general ecology, biology, and taxonomy of major aquatic insect orders.

ENY 6507 Ecology of Freshwaters (3)
PreReq: General Ecology. Physical and chemical nature of freshwaters and their relationships to aquatic insects and other macroinvertebrates.

ENY 6508 Biological Monitoring of Freshwater Ecosystems (3)
PreReq: Invertebrate Zoology, General Ecology, or General Entomology. Biomonitoring strategies for evaluating the health of freshwater ecosystems; importance of benthic macroinvertebrates as indicators of water quality.

ENY 6595 Mosquito Biology and Control (4)
PreReq: General Entomology and/or Medical Entomology. Economic importance and taxonomy of mosquitoes with emphasis on state and municipal regulations and methods for mosquito control and arthropod-borne disease abatement.

ENY 6663 Medical Entomology (3)
PreReq: General Entomology. Identification, biology, disease epidemiology and control of arthropods affecting human health.

ENY 6664 Veterinary Entomology (3)
PreReq: General Entomology. Various disease relationships, biology and control of arthropods affecting the health of domestic animals.

ENY 6665 Integrated Pest Management for Public Health (3)
PreReq: General Entomology, General Ecology. Introduction to methods of public health pest control using chemical and nonchemical techniques. Review of various types of public health abatement practices and how they may be integrated to manage pests in an efficacious and environmentally sound manner.

ENY 6814 Entomology Seminar (1)
How to prepare and present scientific information to others.

ENY 6815 Biometry and Experimental Design in Entomology (3)
PreReq: General Entomology and a basic course in Statistics. In-depth survey and philosophy of experimental design through the use of entomological examples as models.

ENY 7929 Advanced Research (1-9)
Research for doctoral students before admission to candidacy. Designed for students with a master's degree in the field of study or for students who have been accepted for a doctoral program. Not open to students who have been admitted to candidacy.

ENY 7980 Research for Doctoral Dissertation (1-15)
Research for doctoral students who have received admission to candidacy.

College of Education

The curricula are designed to produce teachers and educators who are exemplary professionals: professionally astute, academically astute, confident, analytical/reflective, proactive, and ethical.

The College of Education offers the Doctorate in Education in Educational Leadership. Additionally the Master of Science in Education are offered in the following specialty areas:

Adult Education
Business Education
Counselor Education
Early Childhood and Elementary Education
Educational Leadership (Administration & Supervision)
Health and Physical Education
Industrial Arts/Technology
Secondary Education and Foundations

Department of Educational Leadership and Human Services

The Department of Educational Leadership and Human Services provides experiences for a variety of professional careers in educational and non-educational institutions and agencies. Students acquire skills and competencies in the areas of Adult Education, Counselor Education, and Educational Leadership (Administration and Supervision).

The Adult Education and Counselor Education programs offer the Master of Science degree in Adult Education, and the Master of Science degree in General Education, which requires a thesis. The program in Educational Leadership offers three graduate degrees; the Master of Education degree (M.Ed.), the Master of Science degree (M.S.), which requires a thesis, and the Doctor of Education (Ph.D.), which requires a dissertation.

The department offers three degrees programs: students prepare for leadership positions in schools (Pre-K-12) and institutions of higher education, for educational positions in government and other educational entities, for engaging in counseling/mental health and student personnel work. The programs of study are designed to provide candidates with the knowledge, skills, and dispositions necessary for leadership in educational organizations at all levels.

Specific programs may vary within and between majors and allow the student to concentrate on various areas of professional competence.

Faculty

Professors: Doolittle, Gary; Otar; Hope, Warren; Moore, Mary; Poole, Gloria
Associate Professors: Billups, Arland; Brockmeier, Laney; Davenport, Elizabeth; Davis, Jody; Lulit, Ghazwan; McConnell-Robinson, Nancy; Respess, Trinetia; Green-Powell, Patricia
Assistant Professors: Bogan, Yolanda

Adult Education Administration
Master of Education/Master of Science

The program in Adult Education prepares practitioners to provide leadership to facilitate adult learning in a variety of organizational,