

College of Science and Technology

Graduate Degrees 2008-2009

Department/School	Major	Degree	
Master's Level			
Administration of Justice	Administration of Justice Administration of Justice Emphasis Juvenile Emphasis	Master of Arts and Master of Science	
	Forensic Science	Master of Science	
Biological Sciences	Biological Sciences Biological Sciences Emphasis Environmental Biology Emphasis Marine Biology Emphasis Microbiology Emphasis Molecular Biology Emphasis	Master of Science	
	Chemistry and Biochemistry	Chemistry Biochemistry Emphasis Chemistry Emphasis	Master of Science
		Coastal Sciences	Master of Science
	Computing	Computer Science Computational Science Emphasis Computer Science Emphasis	Master of Science
	Construction	Engineering Technology Engineering Technology Construction Management and Technology Emphasis Architecture Construction Visualization Emphasis Logistics Management and Technology Emphasis	Master of Science Master of Science
Economic and Workforce Development		Economic Development Workforce Training and Development	Master of Science Master of Science
		Geography and Geology	Geography Geology Geology Emphasis Professional Geology Emphasis
Mathematics	Mathematics		Master of Science
Marine Science	Marine Science Hydrographic Science		Master of Science Master of Science
	Physics and Astronomy	Physics Computational Science Emphasis Physics Emphasis Polymer Physics Emphasis	Master of Science

Department/School	Major	Degree
Polymers and High Performance Materials	Polymer Science and Engineering Sports and High Performance Materials	Master of Science Master of Science
Science and Mathematics Education	Science Education Biology Emphasis Chemistry Emphasis Earth and Environmental Science Emphasis Mathematics Emphasis Physics Emphasis	Master of Science
Doctoral Level		
Administration of Justice	Administration of Justice	Doctor of Philosophy
Biological Sciences	Biological Sciences Biological Sciences Emphasis Environmental Biology Emphasis Marine Biology Emphasis Microbiology Emphasis Molecular Biology Emphasis	Doctor of Philosophy
Chemistry and Biochemistry	Chemistry Biochemistry Emphasis Chemistry Emphasis	Doctor of Philosophy
Coastal Sciences	Coastal Sciences	Doctor of Philosophy
Computing	Computational Science Computer Science Emphasis	Doctor of Philosophy
Economic and Workforce Development	Human Capital Development	Doctor of Philosophy
Geography and Geology	Geography	Doctor of Philosophy
Mathematics	Computational Science Mathematics Emphasis	Doctor of Philosophy
Marine Science	Marine Science	Doctor of Philosophy
Physics and Astronomy	Computational Science Physics Emphasis	Doctor of Philosophy
Polymers and High Performance Materials	Polymer Science and Engineering Sports and High Performance Materials	Doctor of Philosophy Doctor of Philosophy
Science and Mathematics Education	Science Education Biology Emphasis Chemistry Emphasis Coastal Science Emphasis Computer Science Emphasis Earth and Environmental Science Emphasis Marine Science Emphasis Mathematics Emphasis Medical Technology Emphasis Physics Emphasis Polymer Science Emphasis	Doctor of Philosophy

College of Science and Technology

Rex F. Gandy, Ph.D., Dean
 Joe B. Whitehead, Ph.D., Associate Dean
 Patricia M. Beisiot, Ph.D., Associate Dean
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The College of Science and Technology offers degrees as outlined on the previous two pages. Please check each department/school section for specific admission, course, and graduation requirements as well as for descriptions of areas of specialization. In addition, present and prospective students should consult earlier sections of this *Bulletin* for the general Graduate School requirements and regulations that apply to all graduate programs and degrees.

The Center for Science and Mathematics Education, in cooperation with the Departments of Biological Sciences, Chemistry and Biochemistry, Coastal Sciences, Computer Science and Statistics, Geology, Marine Sciences, Mathematics, Medical Technology, and Physics and Astronomy offers the M.S., and Ph.D. degrees in science and mathematics education with areas of specialization as indicated in the college's graduate degrees listing. These units also cooperate with the College of Education and Psychology to offer the coursework to support the M.Ed. and Ed.D. in secondary education with various science and mathematics specialization areas.

The college offers the Ph.D. in Computational Science with emphasis in Computer Science, Computational Mathematics, and Computational Physics and an interdisciplinary minor in environmental science. Interested students may obtain a listing of the available courses from the chair of their department or graduate committee.

The faculty members of the College of Science and Technology have organized numerous specialized centers and institutes, several of which address interdisciplinary issues. Brief descriptions of the principal ones follow.

Gulf Coast Research Laboratory

The Gulf Coast Research Laboratory (GCRL) in Ocean Springs has offered summer courses in the marine sciences since 1947. More than 160 researchers, technical and support personnel, and students work on this campus; research emphasis areas include aquatic animal health, marine aquaculture, aquatic biodiversity, coastal ecology, fate and effects of environmental pollutants, and fisheries science. The GCRL is home to the Department of Coastal Sciences and the Center for Fisheries Research and Development.

J. L. Scott Marine Education Center

In the wake of Hurricane Katrina's destruction, the J. L. Scott Marine Education Center and Aquarium (Scott Aquarium) is now at an interim location at the Gulf Coast Research Laboratory in Ocean Springs, Mississippi. The suite of hands-on marine science education programs that earned the Scott Aquarium an international, award-winning reputation will continue to reach precollege teachers and students who participate in institutes, workshops, educational field programs, and day camps.

Stennis Space Center

The Stennis Space Center (SSC) is home to more oceanographers than any other location in the world. Students, staff, and faculty have the opportunity to interact with more than 1,000 scientists, engineers, and technical personnel working at this site located near Bay St. Louis, Mississippi. Collaborations are possible with personnel at the Naval Research Laboratory, the Naval Oceanographic Office, the Naval Meteorology and Oceanography Command, the National Oceanic and Atmospheric Administration's National Data Buoy Center and National Marine Fisheries

Service, the U.S. Environmental Protection Agency's Gulf of Mexico Program, the U.S. Geological Survey, the National Aeronautics and Space Administration laboratories, and other agencies. SSC is home to the Department of Marine Science, Center for Trace Analysis, and Hydrographic Science Research Center.

Center for Molecular and Cellular Biosciences

Gordon Cannon, Ph.D., Coordinator
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This center is composed of scientists with expertise in the disciplines of biochemistry, microbiology, molecular biology, and molecular genetics. The center facilitates research in these areas by means of a weekly Journal Club, which reviews the current literature, and the Distinguished Scientists Seminar Series, which brings world-renowned researchers to the Hattiesburg campus. In addition, the center provides a forum for interaction among graduate and undergraduate students working in the laboratories of the participating faculty. Faculty currently associated with the center are members of the Departments of Biological Sciences, Chemistry and Biochemistry, Polymer Science, and Psychology.

Innovation for Construction and Engineering Enhancement (ICEE) Center

Tulio Sulbaran, Ph.D., Director
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The Innovation for Construction and Engineering Enhancement (ICEE) Center is a multi-disciplinary industrial, educational and research hub housed at The University of Southern Mississippi within the School of Engineering Technology. The mission of ICEE is twofold:

- 1) develop, implement and assess the latest educational technology for the architecture/engineering/construction community; and
- 2) enhance the economic development of the construction industry through the use of the latest technologies and management tools.

Individuals with background and/or interest in education, information technology or architecture/engineering/construction are encouraged to contact the center to explore possible opportunities.

Institute of Environmental Science

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The Institute of Environmental Science assembles teams of researchers from all disciplines as needed to undertake applied research in the areas of environmental studies and renewable energy resources. Providing environmental expertise to the community is another major function of the institute.

Institute for Formulation Science

Robert Y. Lochhead, Ph.D., Director
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The Institute for Formulation Science supports and coordinates research in formulation science. The institute is an integral part of the College of Science and Technology and functions in concert with the School of Polymers and High Performance Materials.

Institute for Justice Systems, Management, Research, and Training

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The Institute provides consultation services for county jails, legal organizations, and law enforcement agencies. Additionally, the Institute serves as federally designated monitors/consultants and plans and sponsors statewide conferences for Youth Court judges and training school personnel.

Mississippi Polymer Institute

James Evans, Director
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The Mississippi Polymer Institute was authorized by the Mississippi Legislature in 1983. The purpose of the institute is to conduct research designed to support the rapidly growing polymer industry in Mississippi by building the infrastructure and providing technical assistance. The institute is an integral part of the College of Science and Technology and functions in concert with the School of Polymers and High Performance Materials.

Department of Administration of Justice

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Balamurugan, Carlan, Dial, Johnson, Nored, Payne, Thompson

The Department of Administration of Justice offers courses leading to a master of arts degree, a master of science degree, a doctor of philosophy degree, and a graduate minor in the master's and doctoral degree programs of other departments.

Graduate Degree Programs

Master of Arts Degree

The Master of Arts in Administration of Justice consists of a minimum of thirty-three (33) hours of administration of justice coursework, or a minimum of twenty-four (24) hours of administration of justice coursework with nine (9) hours of additional coursework in an approved minor (with 18 hours of 600 level or higher). Either sequence also requires six (6) hours of AJ 698, thesis, for a total of thirty-nine (39) hours. AJ 620 and AJ 625 are required. A foreign language competency is required. A comprehensive exam and a 3.0 GPA are required for graduation.

Continuous Enrollment Requirement: Students must meet the requirement specified in the front section of this *Bulletin*.

Master of Science Degree

The Master of Science in Administration of Justice consists of a minimum of thirty-nine (39) hours of administration of justice coursework, or a minimum of thirty (30) hours of administration of justice coursework with nine (9) hours of additional coursework in an approved minor area, plus successful completion of a written comprehensive examination (with 18 hours at the 600 level or higher). The degree is designed to provide specialization in a designated emphasis area to meet professional needs. AJ 620 and AJ 625 are required in each emphasis area. A 3.0 GPA is required to graduate.

Admission Requirements to the Master's Degrees/Programs

1. Admission decisions are based on a balancing of a variety of factors. These include scores on the verbal, quantitative, and analytical portions of the Graduate Record Examination's General Test and undergraduate grade point average (both overall and in administration of justice) and evidence of related field training and work experience. In addition, applicants are to submit for consideration three letters of recommendation from members of their undergraduate faculty and to have such faculty members forward examples of written work which they are able to identify as original work by the applicant submitted in their courses. The letters should be sent to the department.
2. Applicants granted regular admission who have an undergraduate major in administration of justice, including nondegree graduate students, must have achieved a grade point average of 3.0 overall and in their criminal justice courses.
3. Applicants may be granted conditional admission in cases where other than grade point averages indicate. In these cases the department may, at its discretion, grant conditional admission to undergraduate administration of justice majors and nondegree graduate students in administration of justice with a GPA of less than 3.0 but more than 2.75 overall and in administration of justice courses.
4. Applicants who are not administration of justice undergraduate majors, who meet all other criteria, may be granted conditional admission if the department is satisfied that their grade point average overall and in their particular major indicates the potential to perform acceptably in the program. Students should see the appropriate graduate adviser for requirements to achieve regular admission.
5. All prospective students with other than an administration of justice undergraduate major or strong professional training in administration of justice will be admitted conditionally until after completion of twelve (12) hours of undergraduate administration of justice courses with a B or better in each course. These course hours are AJ 325, AJ 330, AJ 352 and either AJ 341 or AJ 360. All such supplemental undergraduate work must be completed prior to beginning graduate coursework.
6. Students from all underrepresented groups are particularly encouraged to apply.

Required courses are listed below. Duplicated work is not permitted. A student may not take for graduate credit a similar course for which the student earlier received undergraduate credit of B or better.

Continuous Enrollment Requirement: Students must meet the requirement specified in the front section of this *Bulletin*.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

I. Administration of Justice

AJ 620	AJ 582	AJ 560	AJ 550	AJ 698
AJ 533	AJ 600	AJ 625	AJ 530	AJ 535

Selection of the juvenile justice specialty entails completion of sixty (60) hours of coursework in order to comply with state policy and federal court orders governing state employees of the Department of Youth Services (18 at the 600 level or higher). An included minor of eighteen (18) hours of coursework is required in psychology, counseling psychology, or social work. Courses may be selected from the following:

II. Juvenile Justice

AJ 620	AJ 535	AJ 550	PSY 532	PSY 611
AJ 560	AJ 561	AJ 563	PSY 612	PSY 613
AJ 571	AJ 582	AJ 600	PSY 614	PSY 630
AJ 625	AJ 650	AJ 660	PSY 711	PSY 714
			PSY 732	PSY 738

Master of Science Degree - Forensic Science

The Master of Science in Forensic Science within the Department of Administration of Justice consists of a minimum of thirty (30) hours of coursework to include six hours of research culminating in a defensible Thesis project. Areas of interest include biology, chemistry, physics, criminalistics, administration of justice and anthropology. Eighteen (18) hours of graduate courses taken must be at the 600 level or higher. The degree is designed to provide specialization in a designated area of interest to meet professional needs. A 3.0 GPA is required to graduate.

Admission Requirements to the Master's Degrees/Programs:

1. Admission decisions are based on a balancing of a variety of factors. These include competitive scores on the verbal and quantitative portions of the Graduate Record Examination's General Test and undergraduate grade point average (both overall and in undergraduate natural science courses). In addition, applicants are to submit in writing a general essay concerning their research interest within their emphasis area along with three letters of recommendation from members of their undergraduate faculty or employers. The letters of recommendation should be sent directly to the department by the respective faculty members.
2. Applicants granted regular admission that have an undergraduate major in a non-natural science must have achieved a grade point average of 3.0 overall and in their respective field of study. Any deficiencies noted for successful completion of the degree program must be addressed prior to the student continuing with formal coursework toward their degree.
3. Applicants may be granted conditional admission in cases where qualifications for success other than grade point averages indicate. In these cases, the department may, at its discretion, grant conditional admission to undergraduates. Students admitted under conditional admission must maintain a 3.0 GPA in all course work and remove any deficiencies during the first two semesters.
4. Students from all underrepresented groups are particularly encouraged to apply.

Continuous Enrollment Requirement: Students must meet the requirement specified in the front section of this *Bulletin*.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Program Requirements

Students must meet the general requirements set forth in the Graduate School of the University of Southern Mississippi. A 3.0 GPA is required to graduate. Other major additional requirements are listed below:

1. Student must arrange for a graduate adviser in their emphasis area by the end of the first semester.
2. Submit a written thesis prospectus for approval by a three-member thesis graduate committee by the end of the second semester.
3. Pass a comprehensive oral and/or written examination by the end of the fourth semester.
4. Meet continuous enrollment requirements of the graduate school.

Doctor of Philosophy Degree

The Doctor of Philosophy in Administration of Justice is designed to prepare students for productive careers as teachers and practitioners of justice administration and research. This doctoral degree is normally taken after a student has earned a master's degree, but exceptional students who have earned only a baccalaureate degree are admitted to the doctoral track at the discretion of the Doctoral Admissions Committee; and in both cases applicants must meet all university and departmental requirements for regular admission.

Admission Requirements

The Doctoral Admissions Committee uses a wide range of criteria, including scores on the GRE, grade point averages, letters of recommendation, experience in justice administration and related fields, the nature of proposed dissertation topics, and - in the case of applicants whose native language is not English - a score on the TOEFL examination indicating a high level of proficiency in English language when making admission decisions. Applicants must possess an approved master's thesis or equivalent written research project. Letters of recommendation should be from persons qualified to assess the applicant's readiness for graduate study and should be sent to the department.

Degree requirements include:

1. a minimum of eighty-four (84) semester hours beyond the bachelor's degree or fifty-four (54) semester hours beyond the master's degree, with a minimum of thirty (30) semester hours completed in specified 600- and 700-level coursework in administration of justice (AJ) and the remainder in approved cognates. A minimum grade of B is required in each course credited toward the degree. A 3.0 GPA is required for graduation.
2. a qualifying examination administered by the AJ graduate committee within twelve months of admission.
3. research tool(s). A combination of coursework which may include proficiency in a foreign language, statistics, or computer science as determined by the department.
4. a written comprehensive examination
5. presentation and oral defense of dissertation (12 hours of 898 required)
6. residency. Students must meet the residency requirements specified in this *Bulletin*.
7. continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Precise details of the standards for admission and of curricular matters are available from the director of doctoral studies in the Department of Administration of Justice.

Graduate Minor in Administration of Justice

The graduate minor in administration of justice consists of at least nine (9) hours of graduate coursework for the master's and twelve (12) hours for the doctorate, at least six (6) hours of which must be taken at The University of Southern Mississippi for either master's or doctorate. Approval of the minor and the courses is at the discretion of the major adviser.

Applicants may be granted regular or conditional admission.

Regular Admission:

1. The applicant must hold a master's degree or juris doctorate (JD) from an institution approved by a recognized accrediting agency.
2. A competitive GRE score on the verbal and quantitative sections.
3. A GPA of 3.5 or greater on prior graduate course work.
4. Successful completion of prior course work in research methodology at least equivalent to that required by the USM B.A., M.S. degrees in Administration of Justice (namely Methods of Criminal Justice Research and Planning AJ 420/ 520, Advanced Research Methods for Administration of

Justice AJ620, and Seminar in Administration of Justice Planning and Research AJ 625);

5. Successful prior course work in the theory of justice (criminal jurisprudence as well as criminology) at least equivalent to that required by the USM B.A. degree in Administration of Justice, Criminal Justice Theory AJ 325;

6. Successful prior course work or professional experience confirming expertise in substantive and procedural criminal law and justice administration at least equivalent to that required by the USM B.A. in Administration of Justice, Namely Criminal Law (AJ 330), Criminal Procedure (AJ 430/530), Evidence, Search and Seizure (AJ 433/533), Introduction to Modern Corrections (AJ 352), and Introduction to Juvenile Justice (AJ 360);

Regular admission requires no course work above the semester hour minimum for the doctorate outline above.

Conditional Admission:

Conditional admission may be granted when an applicant's credentials suggest aptitude for successful doctoral study but are deficient in one or more of the six prerequisite areas outlined immediately above provided student possesses a GPA of at least 3.25. If a student lacks an approved master's thesis, student must provide a researchable proposal: (including a literature search, methodology, and references in an APA format), approved by an Administration of Justice graduate faculty member before the end of the first conditional semester. Hence conditional admission requires a variable amount of preliminary course work above the minimal semester-hour requirement for the doctorate outlined as a condition of regular admission, the amount of such source work being determined by the Graduate Committee.

Department of Biological Sciences

Frank R. Moore, Ph.D., Chair

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Alford, Beckett, Biesiot, Curry, Davis, Deng, Elasri, Ellender, Guo, Jawor, Kreiser, Kuehn, Middlebrooks, Moore, Qualls, Santangelo, Schaefer, Shearer, Wang

The Department of Biological Sciences offers graduate degrees with emphases in environmental biology, marine biology, microbiology, and molecular biology. BSC courses cross-listed as MAR courses are generally taught at the university's Gulf Coast Research Laboratory (GCRL) in the Department of Coastal Sciences (COA) at Ocean Springs, Miss. A COA faculty member may function as a student's major professor.

Admission Requirements

Granting of regular admission to the graduate program in the Department of Biological Sciences is based on the following criteria:

1. suitability of the student to pursue research in the department. Applicants must submit a written letter or essay specifying their research interests and career goals. Acceptance of the applicant is dependent on the availability of a faculty member to direct the student's research and to mentor the student through the program, and the availability of research facilities to carry out the student's research. Because of the critical nature of the student-faculty mentor relationship, applicants are strongly encouraged to contact potential faculty advisers prior to application.
2. student records. Admission to the program is selective and specifications concerning grade point average in the front section of this *Bulletin* are used as a guideline in the selection process.
3. results from the general section of the Graduate Record Examination.
4. letters of recommendation. Three letters of recommendation should be sent to the department. The department will not begin its review of the application until the three letters of recommendation and essay of research interests (described above) have been received.

Because more qualified applicants are received than can be accepted, admission to the department's program is very selective.

Conditional admission to departmental programs is considered only for students who meet Graduate School standards for conditional admission and who are sponsored by a member of the faculty of the department. The sponsor must provide a written statement indicating willingness to serve as the applicant's major professor.

The target dates for receipt of applications for admission for the fall and spring semesters are February 15 and September 15, respectively. All applications received after these dates will be considered if space is available or will be considered for the next term. Applications for teaching assistantships will be considered beginning February 15 as well.

Master of Science Degree

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Program Requirements

A minimum of thirty (30) graduate hours with a 3.0 GPA is required for this degree (18 hours must be at the 600 level or higher). Students must meet the general requirements set forth by the Graduate School of The University of Southern Mississippi. A 3.0 GPA is required to graduate. The following are major additional requirements.

1. Arrange for a graduate adviser by the end of the second semester.
2. Gain approval of a written prospectus from a three-member graduate thesis committee by the end of the third semester.
3. Pass a comprehensive examination (oral and/or written) by the end of the fourth semester.
4. Gain approval of a written thesis and successfully defend the thesis at an advertised research seminar open to the public by the end of the third year.
5. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Doctor of Philosophy Degree

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Program Requirements

A minimum of eighty-four (84) graduate hours beyond the bachelor's degree or a minimum of fifty-four (54) graduate hours beyond the master's degree with a 3.0 GPA is required to graduate. Students must meet the general requirements set forth by the Graduate School of The University of Southern Mississippi. The following are major additional requirements.

1. Arrange for a graduate adviser by the end of the second semester.
2. Gain approval of a written prospectus from a five-member doctoral committee by the end of the fourth semester.
3. Provide an annual research progress report to the doctoral committee after completion of prospectus.
4. Pass a comprehensive examination (oral and written) by the end of the sixth semester.
5. Fulfill the Research Tools requirement as specified by the student's doctoral committee and approved by the chair of the department.
6. Gain approval of a dissertation and successfully defend the dissertation at an advertised research seminar open to the public by the end of the fifth year (for students with an M.S. degree) or sixth year (for students without an M.S. degree). (12 hours of 898 are required)
7. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.
8. Residency - meet residency requirements in the front section of this *Bulletin*.

Department of Chemistry and Biochemistry

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Bateman, Cannon, Evans, Heinhorst, Holder, Hoyle, Huang, Masterson, McCormick, Miao, Phillips, Pojman, Schanz, Stevenson, Wallace, Whitehead

Admission Requirements

Applicants wishing to enter either the master of science degree program or the doctor of philosophy degree program within the department must satisfy the requirements of the Office of Graduate Studies. Among those factors considered in the admission decision are the GPA, submission of test scores on the GRE, and three letters of recommendation from persons qualified to assess the candidate's readiness for graduate study. Letters should be sent to the department. Students whose native language is not English must achieve a score of 590 or above on the TOEFL exam.

Master of Science Degree

The Department of Chemistry and Biochemistry offers the master of science with specialization in analytical, inorganic, organic, physical, and biochemistry. The M.S. programs jointly emphasize area coursework and research/thesis.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Program Requirements

The master's program requires a minimum of thirty (30) hours with a 3.0 GPA (18 hours must be at the 600 level or higher). Placement examinations to identify deficiencies and to indicate remedial studies to remedy these deficiencies, and participation in the seminar program are required for the M.S. degrees, along with specific but flexible coursework programs. Completion of a comprehensive examination in the student's area of specialization and a 3.0 GPA are required to graduate.

Continuous Enrollment Requirement: Students must meet the requirement specified in the front section of this *Bulletin*.

Doctor of Philosophy Degree

The Department of Chemistry and Biochemistry offers the doctor of philosophy with specialization in analytical, inorganic, organic, physical, and biochemistry. The Ph.D. programs emphasize excellence in research. Qualified students holding a bachelor of science are encouraged to enter directly into the doctoral program. Individuals who are adequately prepared may take the qualifying examination at the beginning of their first semester of graduate work, but in no case can it be postponed beyond the second semester of graduate work.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Program Requirements

The Ph.D. programs require eighty-four (84) graduate hours beyond the bachelor's degree or fifty-four (54) graduate hours beyond the master's degree with a 3.0 GPA. Specific course requirements depend upon individual needs and are selected with the advice of the student's research director and doctoral committee.

Among other requirements are

1. completion and oral defense of a research prospectus
2. completion of a Ph.D. comprehensive examination
3. Participation in the seminar program

4. Research Tools:
PHI 735 (Research Ethics), CHE 500 (Chemical Literature), and CHE 510 (Chemical Safety).
5. completion of a substantial research project and successful oral defense of a dissertation (12 hours of 898 are required)
6. Residency. Students must meet the residency requirements specified in this *Bulletin*.
7. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Department of Coastal Sciences

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Biber, Brouwer, Campbell, Comyns, Dillon, Fulford, Grimes, Hawkins, Heard, Lotz, Otvos, Overstreet, Peterson, Rakocinski

The Department of Coastal Sciences offers both the Master of Science and Doctor of Philosophy in Coastal Sciences. Given the interdisciplinary nature of this department, students interested in pursuing a degree in coastal sciences should develop a strong background and working knowledge in the basic sciences. Experience with computers and a basic background in statistics is recommended.

Master of Science Degree

The Department of Coastal Sciences offers a Master of Science in Coastal Sciences with specialization in a wide range of subdisciplines including aquaculture, coastal ecology, biodiversity and systematics, coastal geology, estuarine and marine botany, fisheries ecology, geochemistry, parasites and diseases, and toxicology. Knowledge deficiencies will be corrected through completion of elective courses as determined by the student's three-member graduate committee.

Admission Requirements

Granting of regular admission to the master of science degree program is based on several criteria, including but not limited to the following:

- 1) submission of complete undergraduate transcript(s). Regular admission to the master of science degree program requires a minimum grade point average (GPA) of 2.75 in the last two years of undergraduate credit, a minimum overall GPA of 3.0 in a science-based major, and an overall GPA of 3.0 or above;
- 2) submission of results of the general section of the Graduate Record Examination (GRE). Successful applicants have highly competitive scores;
- 3) a letter of intent stating interests and career goals as well as three letters of recommendation. The letters of recommendation should be from people qualified to assess the applicant's readiness for graduate study and should be sent to the department. The department will not initiate its review of an application until the letter of intent and letters of recommendation are provided. The letter of intent is used as an example of the applicant's writing and communication skills, and provides information concerning the compatibility of the applicant's interests with departmental research interests. The letter of intent and letters of recommendation should be sent to the Department of Coastal Sciences, Attention: Coordinator of Graduate Studies;
- 4) a minimum score of 560 on the paper test or 220 on the computer test is required on the Test of English as a Foreign Language (TOEFL) for applicants whose native language is not English.

Because more qualified students apply to the Department of Coastal Sciences than can be accepted, admission is selective and a complete application must be submitted.

Conditional admission to the Department of Coastal Sciences is considered for students who meet Graduate School standards for conditional admission and who are sponsored by a member of the faculty of Coastal Sciences. The sponsor must provide a written statement indicating willingness to serve as the applicant's major professor. Conditional students cannot obtain a departmental assistantship but can be awarded a research stipend from a major professor's grant.

Conditionally admitted students must maintain a 3.0 GPA for the first nine (9) hours of formal coursework numbered 500 and above or on all coursework taken while meeting this nine (9)-hour requirement, not including research hours and only including up to three (3) hours of Special Problems. If this requirement is not met, the student is not allowed to remain in the program. Upon recommendation of the department chair and approval by the graduate dean, the conditionally admitted student may have his or her admission status changed to “regular admission.”

Students wishing to be considered for a limited number of graduate assistantships for the academic year beginning in the fall semester must have their completed application package to the Office of Graduate Studies no later than February 15. All applications for admission reviewed after this date will be considered if space is available, or will be placed in consideration for the next term.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Program Requirements

A minimum of thirty (30) graduate hours is required for this degree. Students must meet the general requirements of the Graduate School of The University of Southern Mississippi. Students advance to candidacy for the M.S. degree by completing the entire program of study (projection of coursework taken during tenure in Coastal Sciences; see below) developed in consultation with their graduate committee with a 3.0 grade point average or above, completing an approved thesis prospectus, and successfully passing the oral or written thesis comprehensive examination or both.

The following list describes major additional requirements:

1. Choose a major professor and establish a three-member graduate thesis committee by the end of the second semester in residency;
2. Develop a program of study in consultation with a major professor and thesis committee by the end of the second semester of residency. Graduate students cannot accumulate more than two Cs;
3. Submit a research prospectus approved by the graduate thesis committee by the end of the third semester in residency;
4. Pass an oral or written comprehensive examination or both by the end of the third semester in residency (administered by the thesis committee); and
5. Present an acceptable copy of the thesis to the graduate thesis committee at least 10 days prior to a public defense of the thesis at a publicly announced meeting. (See Thesis Timetable at www.usm.edu/graduatestudies.) A 3.0 GPA is required to graduate.
6. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Program of Study

	Hours
COA 691 Research in Coastal Sciences.....	6
COA 698 Thesis.....	6
Electives (Determined by major adviser and advisory committee)**.....	18

**COA 697 - Independent Study and Research, COA 698 - Thesis and research do not count toward this 18 credit hours of electives for the M.S. degree.

Doctor of Philosophy Degree

The Department of Coastal Sciences offers a Doctor of Philosophy in Coastal Sciences with specialization in a wide range of subdisciplines including aquaculture, coastal ecology, biodiversity and systematics, coastal geology, estuarine and marine botany, fisheries ecology, geochemistry, parasites and diseases, and toxicology. The Ph.D. program emphasizes excellence in research. Knowledge deficiencies will be corrected through enrollment in elective courses as determined by the student's four-member graduate committee.

Qualified students holding a bachelor's degree (B.S./B.A.) or M.S. degree in a relevant field of science are encouraged to apply for admission.

Admission Requirements

Granting of regular admission to the doctor of philosophy degree program is based on several criteria, including but not limited to the following:

1. Regular admission to the doctor of philosophy degree program requires consideration of the undergraduate overall GPA of 3.0 in a science-based major and a minimum GPA of 3.5 on all previous graduate work;
2. Submission of results of the general section of the Graduate Record Examination (GRE). Successful applicants have highly competitive scores;
3. A letter of intent stating interests and career goals as well as three letters of recommendation from people qualified to assess the applicant's readiness for graduate study should be sent to the department or school. The department will not initiate its review of an application until the letter of intent and letters of recommendation are provided. The letter of intent is used as a sample of the applicant's writing and communication skills, and provides information concerning the compatibility of the applicant's interests with departmental research interests. These should be sent to the Department of Coastal Sciences coordinator of Graduate Studies; and
4. A minimum score of 560 on the paper test or 220 on the computer test is required on the Test of English as a Foreign Language (TOEFL) for applicants whose native language is not English.

Because more qualified students apply to the Department of Coastal Sciences than can be accepted, admission is selective and a complete application must be submitted.

Conditional admission to the Department of Coastal Sciences is considered for students who meet Graduate School standards for conditional admission and who are sponsored by a member of the faculty of the Department of Coastal Sciences. The sponsor must provide a written statement indicating willingness to serve as the applicant's major professor. Conditional students can not obtain a departmental assistantship but can be awarded a research stipend from a major professor's grant.

Conditionally admitted students must maintain a 3.25 GPA for the first nine (9) hours of formal coursework numbered 600 and above or on all coursework taken while meeting this requirement, not including research hours and only including up to three (3) hours of Special Problems. If this requirement is not met, the student is not allowed to remain in the program. Upon recommendation of the departmental chair and approval by the graduate dean, the conditionally admitted student may have their admission status changed to "regular admission."

Students wishing to be considered for a limited number of graduate assistantships for the academic year beginning in the fall semester must have their completed application package to The Graduate Studies Office no later than February 15. All applications for admission reviewed after this date will be considered if space is available, or will be placed in consideration for the next term.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Program Requirements

A minimum of eighty-four (84) hours beyond a B.S./B.A. degree or a minimum of fifty-four (54) graduate hours beyond the M.S. degree is required for this degree. Students must meet the general requirements of the Graduate School of The University of Southern Mississippi. Students advance to candidacy for the Ph.D. degree by completing the entire program of study (projection of coursework taken during tenure in coastal sciences; see below) developed in consultation with their graduate committee with a 3.0 grade point average or above, completing an approved dissertation prospectus, and successfully passing the written and oral comprehensive examinations.

The following list describes major additional requirements:

1. Choose a major professor and establish a four-member graduate doctoral committee by the beginning of the third semester in residency;
2. Develop a program of study (projection of coursework taken during tenure in Coastal Sciences) in consultation with major professor and dissertation committee by the end of the third semester of residency. Graduate students cannot accumulate more than two Cs;
3. Research Tool(s). The Ph.D. program requires that the student's Ph.D. committee will convene and examine the student's academic background and progress to date and will together develop a set of research tools based on the student's goals. These research tools will not exceed a total of 15 hours in addition to the core courses and other degree requirements.

4. The student will present a prospectus defense to his/her graduate committee to demonstrate an adequate depth of knowledge and ability to conduct research and pursue the Ph.D. program. For full-time students, this requirement will normally be fulfilled by the end of the second year of the student's program;
5. Pass an oral and written comprehensive examination by the end of the sixth semester in residency, which is administered by the doctoral committee; and
6. Present an acceptable copy of the dissertation to the graduate doctoral committee at least 10 days prior to a public defense of the dissertation at a publicly announced meeting. (See Dissertation Timetable in front section of this *Bulletin*.)
7. A 3.0 GPA is required for graduation.
8. Residency. Students must meet the residency requirements specified in the *Bulletin*.
9. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Program of Study

Hours

COA 791 Research in Coastal Sciences.....	16
COA 898 Dissertation.....	12
Research Tools.....	15
Electives (Determined by major adviser and advisory committee)**.....	11

**COA 797 - Independent Study and Research, COA 898 - Dissertation and research do not count toward the twenty-six (26) hours of electives for the Ph.D. The above courses account for the minimum fifty-four (54) hours required for the Ph.D. for students entering with a M.S. degree. The additional thirty (30) hours of required electives for students entering with a B.S./B.A. degree are selected by the graduate student in consultation with the major adviser and the student's advisory committee.

School of Computing

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A., Ali, D. Ali, Buchannon, Burge, Burgess, El-Sawi, Leybourne, Murali, Nagurney, Perkins, Rimes, Seyfarth, Strelzoff, Sun, Yenduri, Zand, Zhang

The School of Computing offers the Ph.D. in Computational Science with emphasis in Computer Science, Master of Science in Computer Science, Master of Science in Engineering Technology, and the Master of Science in Computer Science with an emphasis in computational science.

Doctor of Philosophy in Computational Science - Emphasis in Computer Science

Admission Requirements

Students expecting regular admission to the program should hold a bachelor's or master's degree in computer science, or a bachelor's or master's degree in another discipline, with demonstrated proficiency in the areas of computer architecture, data structures and algorithms, and software design. Students should possess a grade point average of at least 3.5 on all graduate work attempted. Prospective students should submit scores from the General section of the Graduate Record Examination and three letters of recommendation from persons qualified to assess the student's readiness for doctoral student. Letters should be sent to the department.

Degree Requirements

Students expecting regular admission to the program should hold a bachelor's or master's degree in computer science,

A minimum of eighty-four (84) graduate semester hours beyond the bachelor's degree or fifty-four (54) graduate semester hours beyond the master's is required for the degree. A 3.0 GPA is required to graduate. All students in the program are required to complete a curriculum consisting of the following courses:

Research Tools courses: COS 701 (Visualization Techniques), COS 702 (Data Analysis Techniques), COS 703 (Data Handling Techniques)

Core courses: CSC 726 (Advanced Computer Architecture), CSC (Advanced Computing Algorithms), CSC 733, (Advanced Distributed Database Systems), CSC 730 (Parallel and Distributed Computing), COS 898 - 12 hrs (Dissertation)

Following completion of these courses, a student will form his or her doctoral committee. The doctoral committee shall consist of five members. A minimum of three members must be faculty of the School of Computing; a minimum of one member must be a faculty member of a USM Computational Science program, and one member may consist of any qualified faculty member with expertise in a mathematical or scientific discipline. A student's committee will assist the student in selecting courses for the remaining required hours, in accordance with the student's specific skill requirements and research interests. Courses may be selected from both Computer Science offerings, as well as from relevant courses of other departments. Students must write and orally defend a dissertation - 12 hours of 898 are required.

Students entering the program with a bachelor's degree may elect to earn a master's degree in Computer Science while enrolled in the Ph.D. program by utilizing track 2 of the program requirements for a Master of Science degree in Computer Science. 700-level courses taken as part of the master's degree requirements can not be counted as hours toward the Ph.D. degree. Core courses taken in conjunction with the correspondingly numbered master's level courses can not be counted as hours toward the Ph.D degree, but they count for satisfying the core knowledge requirement. For more details, refer to the Master of Science Program in Computer Science in this *Bulletin*.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Residency

Students must meet the residency requirements specified in this *Bulletin*.

Continuous Enrollment Requirement

Students must meet the enrollment requirement specified in this *Bulletin* and the requirements of The Graduate Studies Office.

Other Requirements

Students must meet the requirements of the Graduate School of The University of Southern Mississippi. They are required, additionally, to pass a comprehensive examination covering the core CSC curriculum, to submit a formal prospectus that has been approved by the doctoral committee, and to present an acceptable copy of the dissertation to the doctoral committee at least fourteen (14) calendar days prior to the defense of the dissertation. This defense will take place at an advertised research seminar, open to members of the university community.

Comprehensive and Qualifying Examinations

To remain in good standing in the program, each student, upon completion of the core curriculum, must take and pass a comprehensive examination. The examination, which is normally administered in the spring and fall of each year, consists of four sections covering the four corresponding areas of the core curriculum, and is prepared by a committee of computer science faculty. Students must register for the examination two months prior to the examination date and will have one, and only one, additional opportunity to pass the examination, retaking only those sections of the examination that they failed to pass at the first sitting. The opportunity to try the examination a second time must be exercised no later than the corresponding semester in the year immediately following the first attempt. Students failing to pass all sections of the examination after the second try will be dismissed from the program.

Master of Science Degree in Computer Science

For the M.S. degree in computer science, a minimum of thirty-three (33) hours of graduate work is required. Of these hours, at least 21 must be computer science courses (non-thesis/project) numbered 600 or above. In addition, a student will complete either a thesis (6 hours) or a project (3 hours) in computer science. A comprehensive exam and a 3.0 GPA are required for graduation.

The master's program is designed to provide a fundamental understanding of theoretical and applied computer science that will allow the student to begin exploring special topics and state-of-the-art subjects. It will prepare a student for advanced applications, development, and research positions in industry or for doctoral-level studies.

Admission Requirements

In addition to meeting the entrance requirements set forth by the Graduate School of The University of Southern Mississippi, the student must be admitted by the departmental admissions committee on a regular or conditional basis. Students must submit scores on the Graduate Record Examination and transcripts of all undergraduate work. During the past year, successful applicants have had a mean GPA of 3.43. Applicants are required to submit three letters of recommendation by professionals in computer/computational science qualified to assess the student's readiness for graduate study. Letters should be sent to the department. In addition, applicants are encouraged to submit additional information that documents their potential for doing graduate work in computer/computational science. This would include industrial work experience and training and graduate work already completed. Students with minor deficiencies may be granted conditional admission.

For students who do not come from an undergraduate program where the courses clearly equate with the Southern Miss courses, the graduate admissions committee will review a student's transcripts and decide which, if any, requirements can be met with undergraduate courses. A student will not be granted regular admission to the computer/computational science graduate program until those requirements are met. See the general policies of the Graduate School for further requirements of conditional admission for students.

Credit will NOT be given toward the master's degree for any course taken to absolve deficiencies, meet admission requirements, or fulfill undergraduate prerequisite courses.

The student must select a three-person advisory committee. The chair of this committee must be from the School of Computing (one member may be from outside the School of Computing).

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Program Requirements

1. completion of prerequisites. A student applying for admission will normally have a B.S. degree from a computer science or closely related program. Minimum coursework required for admission includes the equivalent of CSC 101, 102, 203, 204, 205, 306, 307, 308, 414, and three courses from among the following: CSC 305, 410, 411, 412, 413, and 415 (see the Southern Miss *Undergraduate* and *Graduate Bulletins* for course descriptions) and mathematics through integral calculus, basic probability, discrete math, and linear algebra.
2. completion of CSC 513 if the student has not completed CSC 413
3. completion of on of the following tracks:
 - Track 1:
 - a) completion of 33 hours of graduate coursework to include the following set of core courses: CSC 616, CSC 623, CSC 626 and three courses from among the following: CSC 620, CSC 624, CSC 630, CSC 632, CSC 633, and CSC 638. Students may substitute CSC 620 for CSC 616, in the set of core courses, if they have credit for the equivalent of CSC 415.
 - b) satisfactory completion of a thesis (6 hours credit) or a project (3 hours credit)
 - Track 2:
 - completion of 33 hours of coursework to include the following set of core courses: CSC 726, CSC 730, CSC 733, CSC 738 and the following courses: (CSC 620, CSC 623)
4. satisfactory completion of a final comprehensive examination
5. 3.0 GPA required for graduation
6. continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Master of Science in Computer Science with an Emphasis in Computational Science

The department also awards an M.S. degree with an emphasis in computational science. A degree plan for this emphasis area must include a common core of courses taken from the School of Computing and the departments of Mathematics, and Physics and Astronomy.

Admission Requirements

See admissions requirements in the above section.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Degree Requirements

1. completion of prerequisites. A student applying for admission will normally have a B.S. degree from a computer science, mathematics, physics, or closely related program. Minimum course work required for admission includes the equivalent of CSC 101, CSC 102, CSC 307, MAT 385, MAT 326, and PHY 351 or PHY 361.
2. completion of at least 36 hours of graduate work with a 3.0 GPA (18 hours must be at the 600 level or higher)
3. completion of the computational science core courses
4. satisfactory completion of a comprehensive examination
5. continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Master of Science in Engineering Technology

The School of Computing offers a program leading to the Master of Science in Engineering Technology with specialization in electronics/computer, engineering technology, and information technology. The degree can be obtained through research thesis, significant project, or coursework options. Advanced study in industrial use of computers includes computer-aided drafting (CAD), computer-aided manufacturing (CAM), computer-integrated manufacturing (CIM), robotics, and virtual reality. Electronics and computer systems courses focus upon the introduction and implementation of state-of-the-art technology. Students are encouraged to develop degree plans that include technical electives in management, computer science, mathematics, environmental science, and related academic disciplines to prepare themselves for leadership roles in high technology industries.

Admission Requirements

For regular admission, students must have an undergraduate degree from an ABET accredited program or from a closely related program and a minimum 2.75 GPA. Students must submit test scores from the Graduate Record Examination (GRE) or Graduate Management Admission Test (GMAT) and three (3) letters of recommendation. Letters of recommendation should be from persons qualified to assess the applicant's readiness for graduate study and should be sent to the department or school. Students whose native language is not English must achieve a TOEFL score of 575 or higher.

Conditional admission may be granted to students who do not meet requirements for regular admission. Students admitted on a conditional basis may be required to complete additional coursework and must have a minimum GPA of 3.0 on the first nine hours of graduate courses 500 level or above or on all courses taken when meeting this nine (9) hour requirement in order to be granted regular admission.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Degree Requirements

In addition to the degree requirements established by the Graduate School, students earning the Master of Science in Engineering Technology must satisfy the degree requirements listed below.

1. Students must select a degree option (thesis, project, or coursework) and develop a degree plan to be approved by a faculty adviser and the School of Computing graduate coordinator prior to the completion of more than nine (9) hours of graduate work.

- (a) **Thesis Option:** The thesis is intended to be a scholarly piece of research designed to expand the student's education in an area of engineering technology. This research must be conducted and defended before the student's graduate committee, and the final thesis report accepted by the Southern Miss graduate reader and the Southern Miss Graduate Studies Office. The thesis, when completed, receives six (6) graduate hours. The thesis option requires 30 hours total: six (6) hours of thesis, and 24 additional hours (18 hours must be at the 600 level or higher).
 - (b) **Project Option:** The project is also intended to be a scholarly piece of research. The project must be conducted, written, and defended before the student's graduate committee. The project is worth three (3) graduate hours. The project option requires 33 hours total: three (3) hours of project and 30 additional hours (18 hours must be at the 600 level or higher). Students who select the project option should enroll in a project course for credit.
 - (c) **Coursework Option:** The coursework option requires 36 hours total of which 18 hours must be 600 level or higher.
2. During the first year of graduate study, students must select a graduate committee comprised of three members of whom two must be members of the graduate faculty of the School of Computing.
 3. Students must perform satisfactorily on a comprehensive examination, which is required for graduation. This exam is normally administered during the final semester of graduate work.
 4. Students must maintain a cumulative GPA of 3.0 based on all graduate courses completed. A 3.0 GPA is required to graduate.
 5. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

School of Construction

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Fletcher, Hannon, Kemp, Lipscomb, Marchman, Sulbaran, Vajpayee

Mission

The School of Construction graduate program at The University of Southern Mississippi is committed to preparing our students for exceptional careers in industry. To fulfill our mission, the School of Construction programs seek a balanced and synergistic agenda of instruction, scholarly activity and professional service and provide the opportunity to obtain a Master of Science in Engineering Technology with emphasis areas in:

- Construction Management and Technology,
- Architectural and Construction Visualization, or
- Logistics Management and Technology.

A Certificate in Construction Management is also available.

Master of Science in Engineering Technology

Requests for application forms and other information may be addressed to the manager of Graduate Admissions. Telephone inquiries may be made by calling (601) 266-4895. E-Mail inquiries may be made to Desmond.Fletcher@usm.edu.

Graduate assistantships are available for the M.S. degree. Students with good undergraduate records are encouraged to apply at the time they request admission.

Admission Standards

Admission to The University of Southern Mississippi's M.S. programs is selective. Regular admission is contingent on having graduated from a college or university accredited by a recognized accrediting agency. In addition, the graduate admissions committee of the School of Construction recommends admittance only for those applicants whose academic background, work experience, demonstrated leadership, and communication skills meets the challenging demands of graduate programs.

In evaluating applications, the admission committee utilizes the following criteria:

Undergraduate record

The cumulative grade point average (GPA) from all institutions, the area(s) of concentration, the balance of verbal/communication and quantitative/analytical courses, and the trend of grades are considered. Applicants must have a minimum 2.75 GPA in their last 60 hours for regular admission.

Graduate Admission Tests

A candidate should strive to achieve good balanced scores in all areas of on either the Graduate Management Admissions Test (GMAT) or Graduate Record Exam (GRE). For further information regarding taking this test contact Graduate Admissions office.

Test of English as a Foreign Language (TOEFL)

Students whose native language is not English must achieve a TOEFL score of 550 or more.

Work Experience

While work experience is not required for admission, two or more years of relevant responsibility strengthens the likelihood of admission to the program. Applicants are encouraged to submit resumes showing job responsibilities and accomplishments.

Letters of Recommendation

The admission committee reviews three (3) letters of recommendation to gain a more personal understanding of the applicant's leadership ability in terms of communication and interpersonal skills. Each applicant should request three recommendation letters, at least one of which addresses the applicant's academic preparation. Letters of recommendation should be from persons qualified to assess the applicant's readiness for graduate study and should be sent to the department.

Students may enroll in courses reserved exclusively for graduate students if they have regular admission to specific Southern Miss graduate programs and have taken the necessary prerequisites or if they have been admitted to the certificate program. In rare cases, students may be admitted conditionally. To remove Conditional Admission status, masters students must earn a 3.0 on the first nine (9) semester hours of course work numbered 500 or above on all courses taken while completing this nine (9) hour requirement.

Students transferring from other graduate schools must meet the admission requirements stated above. At the time of admission, transfer students may request that up to six (6) semester hours of approval credit be applied toward degree requirements. Once enrolled, transfer of credit for courses taken at other institutions must be approved in advance. See Transfer Course Policy in this *Bulletin*.

Academic Policies

Students who receive a grade of "C" in more than nine (9) hours of course work will be dismissed from the program. Students may not apply hours toward a degree for courses in which there is a grade of "D;" students who receive grades of "D" in more than six (6) hours of course work will be dismissed from the program. Students who receive grades of "F" in more than three (3) hours of course work will be dismissed from the program. Students must have a 3.0 GPA to be in good standing.

Upon approval by the graduate committee, students may repeat one and only one course to improve a cumulative grade point average. Students whose cumulative grade point average (GPA) falls below 3.0 will be placed on probation. Students must attain a cumulative 3.0 GPA by the end of the following (probationary) semester or the graduate committee may dismiss them from the program subject to review.

Degree Requirements

In addition to the degree requirements established by the Graduate School (minimum 30 hours with a minimum of 18 hours at the 600 level), students earning the Master of Science in Engineering Technology must satisfy the degree requirements listed below.

1. Students must select an emphasis area (Construction Management and Technology, Architectural and Construction Visualization, or Logistics Management and Technology) and develop a degree plan to be approved by a faculty advisor and the School of Construction graduate coordinator prior to completion of nine (9) hours of graduate work. Students must complete the course work including required foundation courses defined within the emphasis area. Depending on the emphasis area selected, the following options may be available:

(a) Thesis Option: The thesis is intended to be a scholarly piece of research designed to expand the student's education in an area of engineering technology. This research must be conducted and defended before the student's graduate committee, and the final thesis report accepted by the USM Graduate Reader and the USM Graduate School. The thesis, when completed, receives six (6) graduate hours. The thesis option requires a minimum of 30 hours total: 6 hours of thesis, and 24 additional hours (18 hours must be at the 600

level or higher). Additional hours may be required based on the student's academic record and experience.

(b) Project Option: The project is also intended to be a scholarly piece of research. The project must be conducted, written, and defended before the student's graduate committee. The project is worth 3 graduate hours. The project option requires 33 hours total: 12 hours of project and 21 additional hours (18 hours must be at the 600 level or higher). Additional hours may be required based on the student's academic record and experience.

(c) Coursework Option: the coursework option requires 36 hours total of which 18 hours must be 600 level or higher.

2. During the first semester of graduate study, students must select a Graduate Committee comprised of three members of which at least two must be members of the graduate faculty of the School of Construction.

3. Students must perform satisfactorily on a comprehensive examination, which is required for graduation. This exam is normally administered during the final semester of graduate work.

4. Students must maintain a cumulative GPA of 3.0 based on all graduate courses completed.

5. Continuous Enrollment Requirement. Students must meet the requirements specified in the front section of the Graduate Bulletin.

Certificate in Construction Management

The Certificate in Construction Management is a professional curriculum for students who need to update and formalize their knowledge pertaining to construction management. The certificate program is open to students currently enrolled in a masters or doctoral degree program and to students who have a baccalaureate degree. Students not enrolled in a masters or doctoral program must apply as a non-degree seeking student—see requirements in the Graduate Bulletin. Students may complete the certificate program with or without being admitted to a specific degree program. Students must apply to certificate program before completing six (6) credit hours of the courses required for the Certificate. Students may complete the certificate curriculum by taking the courses in any combination of regular or on-line courses.

To earn the Certificate, students are required to complete a minimum of 18 credit hours (all with grades of B or better) approved by the graduate committee. Upon review and approval by the graduate committee, credit earned during certificate achievement may be applied toward the M.S. degree.

Department of Economic and Workforce Development

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Annulis, Gaudet, Hales, Malone, Miller

The Department of Economic and Workforce Development offers graduate work leading to a Master of Science in Economic Development and a Master of Science in Workforce Training and Development.

Master of Science in Economic Development

The goal of the Economic Development program is to assist students in acquiring professional competency in the concepts, skills, working tools, and creative approaches essential to those involved in the field of economic development, whether at the community, state, regional, national, or international level.

Admission Requirements:

1. Have a 3.0 (4.0 scale) grade point average over the last two years of the student's undergraduate studies.
2. Submit GRE scores. The Graduate Management Admissions Test (GMAT) may be submitted in place of the GRE. Students whose native language is not English must achieve a TOEFL score of 560 or more.
3. Provide three letters of recommendation from persons qualified to assess the applicant's readiness for graduate study. The letters should be sent to the department.
4. In exceptional cases, students may be admitted conditionally. Such students must earn a 3.0 on the first nine (9) semester hours of coursework numbered 500 or above or on all coursework taken while completing this nine (9) hour requirement in order to qualify for regular admission.
5. Students may be required to take some prerequisite courses in geography or business.
6. Submit statement of purpose and goals, portfolio and resume.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Degree Requirements:

1. Successful completion of a minimum of thirty (30) hours in graduate-level courses (18 hours 600 level or higher) as follows:
 - a. Minimum of twenty (20) hours with the prefix ED.
 - b. Demonstrated proficiency (through coursework and/or the comprehensive exam) in economic development research, finance, and marketing, equivalent to ED 722, 724, 761, 764, 765.
 - c. At least four (4) hours of apprenticeship (ED 791).
2. Successful completion of a comprehensive written or oral examination.
3. Completion of one of two curriculum options as follows:
 - a. Thesis option
 - 1) ED 698 (3 hours)
 - 2) Acceptance of valid thesis topic
 - 3) Formation of thesis committee prior to last semester of study
 - b. Non-Thesis option
 - 1) ED 789 (3 hours)
4. A 3.0 GPA is required for graduation.

Continuous Enrollment Requirement: Students must meet the requirement specified in the front section of this *Bulletin*.

Master of Science in Workforce Training and Development

The Master of Science in Workforce Training and Development emphasizes both the research and theory framework as well as the practical application of workplace learning and performance. The goal of the Workforce Training and Development master's program is to prepare students to improve human performance, balance individual and organizational needs, build knowledge capital within the organization, and determine the return on investment of training programs. Students learn to think strategically to design and develop interventions that will positively impact workplace learning and performance. This program is designed to expand instructional opportunities beyond traditional boundaries of on-campus class delivery. The Workforce Training and Development Executive Format program utilizes a distance-learning platform to maximize interaction and learning not only during in-person, weekend-class sessions, but also between sessions via online communication among students and professors.

Admission Requirements:

1. An applicant must hold a baccalaureate degree from an institution approved by a recognized accrediting agency.
2. An applicant must be eligible to re-enter in good standing the last college of university attended.
3. An applicant must provide evidence, by official transcript, of a grade point average of at least 2.75 (figured on "A" equals 4.0) for the last two years of undergraduate study, and a grade point average of at least 3.0 on undergraduate courses in the field of proposed graduate study.
4. An applicant must have at least 3 letters of recommendation from persons qualified to assess the applicant's readiness for graduate study and should be sent to the department.
5. An applicant must submit test scores from the Graduate Record Examination (GRE) or the Graduate Management Admissions Test (GMAT). The GRE is the preferred test. However, the GMAT will be allowed under some circumstances.
6. An applicant whose native language is not English must achieve a TOEFL score of 575 or more.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Degree Requirements

1. In addition to the degree requirements established by the Graduate School (30 hours with 18 hours at the 600 level), students earning the Master of Science in Workforce Training and Development must satisfy the degree requirements listed below.
2. Students must complete a project and develop a degree plan to be approved by a faculty adviser and the Workforce Training and Development coordinator prior to the completion of more than nine (9) hours of graduate work.
3. Students must satisfactorily complete 21 hours of core courses. These courses are determined after review of the student's application materials.
4. During the first year of graduate study, students must select a graduate committee composed of three members of whom two must be members of the graduate faculty of the College of Science and Technology.
5. Students must perform satisfactorily on a comprehensive examination that is required for graduation. This exam is normally administered during the final semester of graduate work.
6. Students must maintain a cumulative GPA of 3.0 based on all graduate courses completed.
7. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Doctor of Philosophy in Human Capital Development

The Department of Economic and Workforce Development offers the doctor of philosophy in human capital development with a research focus in economic, technology or workforce development. The Ph.D. program emphasizes advanced study and research of human capital development in high-growth, high technology industries. The program is designed to build cohorts of scholars capable of advancing the theoretical as well as empirical base of human capital development to support the discovery of new knowledge and its transfer and delivery for all industries in general and for high growth, high technology industries in particular. The Ph.D. program prepares future leaders with the ability to integrate new technologies which demand a highly skilled workforce for increased economic globalization. The Ph.D. program in Human Capital Development is administered from the Gulf Coast campus and is offered in an Executive

Format which effectively blends face-to-face instruction with alternative delivery to maximize learning and professional development. Interaction and learning among students and professors occur during in-person, week-end class sessions, intensive mini sessions, and through online learning communities. For additional program information or updates, please contact Cyndi Gaudet, program coordinator, at 228.214.3344 or Cyndi.Gaudet@usm.edu.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Admissions:

The minimum standards for regular admission are:

1. The applicant must hold a master's degree from an institution approved by a recognized accrediting agency.
2. The applicant must be eligible to re-enter in good standing the last college or university attended.
3. The applicant must present evidence, by official transcript, of a grade point average equivalent of at least 3.5 (calculated on a 4.0 scale) on previous graduate coursework to Southern Miss.
4. Applicants must submit official transcripts from all college or universities attended. To be "official" the transcripts must be sent directly from the college/university to the Southern Miss Office of Graduate Admission found online at <http://www.usm.edu/graduatestudies/>.
5. Applicants must have current GRE scores (< 10 years old) submitted to Southern Miss.
6. Applicant must submit proof of immunization for two MMR (Measles, Mumps, Rubella) vaccinations. Applicants must complete the immunization compliance form which can be found as a PDF at: <http://www.usm.edu/healthservice/services/forms/immunization-compliance.pdf>.
7. A graduate application fee in the form of a check or money order made payable The University of Southern Mississippi Graduate Admissions.
8. Applicant must submit current resume or curriculum vitae (CV) to the department.
9. Applicant must have at least three letters of recommendation from persons qualified to assess the applicant's readiness for doctoral work. Recommendation forms can be downloaded at www.usm.edu/graduatestudies/recommend_forms.php.
10. A statement of professional and/or scholarly accomplishments and a letter of intent specifying areas of interest and career goals. This should be approximately five pages in length single spaced. The purpose of this essay is to allow the departmental admissions committee to assess the applicant's research topic development to date, the applicant's purpose for seeking to earn a PhD in this area, potential synergies in research topics or areas with existing faculty in the program, department, college and university, and the potential for success in the program.
11. International students should submit TOEFL scores. For non-U.S. resident prospects, contact the Office of International Admissions at 118 College Drive #5151, Hattiesburg MS 39406, or by telephone at 601.266.4841.

Degree Requirements

A minimum of fifty-four (54) graduate hours beyond the master's degree with a 3.0 is required to graduate. Students must meet the general requirements set forth by the Office of Graduate Studies of The University of Southern Mississippi. Additional requirements include the satisfactory completion of written and oral comprehensive examinations, and the satisfactory completion and oral defense of an original research dissertation. Coursework for the Human Capital Development PhD program includes the completion of a General Core (15 semester hours), Research core (12 semester hours in research design and methodology coursework, 12 hours of dissertation research), and 15 hours for the student's research concentration (technology, economic, or workforce development).

Continuous Enrollment Requirement

Students must meet the enrollment requirement specified in this *Bulletin* and the requirements of The Graduate Studies Office.

Department of Geography and Geology

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Bass, Cochran, Dixon, Griffith, Meylan, Miller, Raber, Reese, Russell, Ufnar

The Department of Geography and Geology offers a program of study and research leading to a Master of Science and a Doctor of Philosophy in Geography. The programs also offers a curriculum leading to the Master of Science in Geology and a Master of Science in Professional Geology.

Geography Program

The Department of Geography and Geology offers a program of study and research leading to a Master of Science and a Doctor of Philosophy in Geography. The curriculum is designed to provide a thorough understanding of geography as a profession, as well as a solid foundation for continued work towards a Doctor of Philosophy in Geography or a related field. The program provides students with a knowledge of the history, theory, content, and techniques of geography. Graduate students can design their course of study/research and concentrate in one of the subfields of geography that the faculty support. These areas include, but are not limited to, geospatial technologies (remote sensing, GIS, cartography), cultural-historical geography, coastal geography, environmental change, biogeography, landscape ecology, resource management, Latin America and the U.S. South.

Admission Requirements - Geography

The department encourages all interested candidates to apply. An undergraduate degree in geography is not a prerequisite.

1. Applicants must have a 3.0 (4.0 scale) grade point average over the last sixty (60) hours of undergraduate study.
2. Applicants must also submit a GRE score to the Graduate Studies Office. Students whose native language is not English must achieve a TOEFL score of 560 or higher.
3. Students with a non-geography degree may be required to take courses to cover their deficiencies. In exceptional cases, students may be admitted conditionally. Such students must earn a 3.0 on the first nine (9) semester hours of coursework numbered 500 or above or on all coursework taken while completing this nine (9) hour requirement in order to qualify for regular admission.
4. Applicants must also send three letters of recommendation to the Department of Geography, care of the graduate coordinator.
5. Applicants must also send a personal statement as to why they want to enter the program. This statement should be limited to 750 words and should also be sent to the Geography graduate coordinator in the Department of Geography and Geology.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Master of Science Program

Degree Requirements - Geography

1. A minimum of thirty-six (36) semester hours in graduate-level geography courses with at least eighteen (18) hours of work in courses at the 600-level (or higher). With the approval of the major professor, the student has an option of taking (outside the department) up to twelve (12) semester hours of cognate courses within the minimum hourly requirements.
2. GHY 710 and 780. These courses are required of all students.
3. Demonstrated proficiency in cartography and statistical/quantitative methods. Proficiency is generally established (on an individual basis) by evidence of satisfactory completion of coursework in these areas sometime in a student's academic career, at either the graduate or undergraduate level.
4. A thesis or a paper of professional quality. The thesis will confer six (6) semester hours credit to be counted as part of the total minimum hourly requirement for the degree. The paper, which will normally be the end product of work begun in a seminar, will confer no credit hours toward the minimum required for the degree.

5. Successful completion of an oral and written comprehensive examination on the student's academic program. Students writing a thesis will take an oral defense of the thesis. Students choosing the option of preparing a paper of professional quality will have the paper reviewed by the department faculty and will present it orally before the combined faculty.
6. A 3.0 GPA required for graduation
7. Students must meet the requirement for continuous enrollment specified in the front section of this *Bulletin*.

Doctor of Philosophy in Geography

Admission Requirements - Geography

The department encourages all interested candidates to apply. An undergraduate degree in geography is not a prerequisite.

1. Applicants must have a 3.0 (4.0 scale) grade point average over the last sixty (60) hours of undergraduate study.
2. Applicants must also submit a GRE score to the Office of Graduate Admissions. Students whose native language is not English must achieve a TOEFL score of 560 or higher.
3. Students with a non-geography degree may be required to take courses to cover their deficiencies. In exceptional cases, students may be admitted conditionally. Such students must earn a 3.0 on the first nine (9) semester hours of coursework numbered 500 or above or on all coursework taken while completing this nine (9) hour requirement in order to qualify for regular admission.
4. Applicants must also send three letters of recommendation to the Department of Geography, care of the graduate coordinator.
5. Applicants must also send a personal statement as to why they want to enter the program. This statement should be limited to 750 words and should also be sent to the Geography graduate coordinator in the Department of Geography and Geology.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "**Current Students**" and then the "**Plans of Study**" link.

Degree Requirements

A minimum of eighty-four (84) graduate hours beyond the bachelor's degree or a minimum of fifty-four (54) graduate hours beyond the master's degree with a 3.0 GPA is required to graduate. Students must meet the general requirements set forth by The Graduate Studies Office of The University of Southern Mississippi. The following are major additional requirements:

1. Arrange for a graduate adviser by the end of the second semester.
2. GHY 710 and 780. These courses are required of all students.
3. GHY 715 and 755 or their equivalent will be required of all doctoral students.
4. Gain approval of a written prospectus from a five-member doctoral committee by the end of the third semester.
5. Provide an annual research progress report to the doctoral committee after completion of the prospectus.
6. Pass a comprehensive examination (oral and written) by the end of the fifth semester.
7. Fulfill the Research Tools requirement as specified by the student's doctoral committee and approved by the chair of the department.
8. Gain approval of a dissertation and successfully defend the dissertation at an advertised research seminar open to the public.
9. Continuous enrollment must be maintained as stated in this *Bulletin*.
10. Residency. Students must meet residency requirements as stated in this *Bulletin*.
11. Research Tool(s) are required and are determined by the student's doctoral committee.

Geology Program

The Geology program offers a curriculum leading to the Master of Science in Geology and a Master of Science in Geology: Professional Geology emphasis. The Geology program at The University of Southern Mississippi emphasizes both the importance of a field-based education and the application of new technologies to geologic investigations. Geology collaborates with the Center for Science and Mathematics Education in programs leading to the M.S., and Ph.D. with an emphasis in earth and environmental education.

Master of Science Program

Admission Requirements - Geology

Admission is based on grade point average (GPA), three letters of recommendation from persons qualified to assess the applicant's readiness for graduate study (letters should be sent to the department), and submission of results on the Graduate Record Examination (GRE). Both the overall GPA and a GPA calculated for courses (excluding special problems courses) in geology and other sciences, mathematics, computer science, and statistics will be considered.

Applicants who do not have degrees in geology will be considered for admission but will be required to remedy any deficiencies, including geology field camp, compared to the courses required for the B.S. in geology at The University of Southern Mississippi. Students who are not admitted as regular graduate students may be considered for conditional admission (minimum GPA requirements are in the front section of this *Bulletin*).

Admission to the Professional Geology emphasis requires three years experience as a geologist or in a closely related position. A letter of support from the applicant's immediate supervisor is required.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Degree Requirements

Geology Emphasis

A minimum of thirty (30) graduate hours (18 hours at this level), including six (6) hours' thesis credit (698), with a 3.0 GPA, is required to graduate. The remaining twenty-four (24) hours must be graduate geology courses, excluding GLY 692 (Special Problems in Geology) or similar arranged courses, and must include at least 12 hours at the 600 level, excluding thesis credit.

During the first semester of full-time study, the student should identify a general area of thesis research and establish a thesis director and graduate committee. A thesis prospectus should be approved by the graduate committee no later than the end of the second semester. The student must complete an original research project and submit and defend a thesis to receive the M.S. degree in geology. Students must also pass a comprehensive exam. Students who have not already passed the Association of State Boards of Geology (ASBOG) exam are required to take it before completion of the degree program.

Continuous Enrollment Requirement: Students must meet the requirement specified in the front section of this *Bulletin*.

Degree Requirements: Professional Geology Emphasis

A minimum of thirty (30) graduate hours, with a minimum 3.0 GPA, is required for graduation. The required thirty hours must include 18 hours at the 600 level or higher. The required courses must be geology courses or closely related courses within the School of Ocean and Earth Sciences approved by the department chair. Independent study courses offered as GLY 692 (with a course title) can be used.

Degree candidates will be required to pass both a written and an oral comprehensive exam. The Association of State Boards of Geology (ASBOG) Fundamentals of Geology exam must be passed before taking the comprehensive exam. A portfolio consisting of documents demonstrating the ability to conduct applied geological research and technical writing will be required and can include documents created as part of their employment responsibilities.

The Department of Geology is committed to offering at least two courses each semester during the regular academic year that can be taken by individuals who are employed full time. This will include night courses in Hattiesburg, distance learning courses, fully or partially online courses, and compressed weekend courses.

Continuous Enrollment Requirement: Students must meet the requirement specified in the front section of this *Bulletin*.

Department of Marine Science

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Asper, Brunner, Caruthers, Guo, Howden, Kamenkovich, Lohrenz, Nechaev, Orcutt, Redalje, Shiller, Yeager

The Department of Marine Science offers both the Master of Science and Doctor of Philosophy in Marine Science and a Master of Science in Hydrographic Science. Graduate level education and research programs are offered in four emphasis areas of marine science (biological, geological, chemical, and physical marine science and in hydrographic science). These areas include numerical ocean modeling, remote sensing, bathymetry and mapping, positioning, acoustics, and hydrographic surveying. The marine science faculty are drawn from its location at the Stennis Space Center (near Bay St. Louis), and from other departments in the College of Science and Technology (Hattiesburg). Scientists affiliated with the Naval Research Laboratory, the Naval Oceanographic Office, the National Oceanographic and Atmospheric Administration, the National Aeronautics and Space Administration and other agencies at the Stennis Space Center and elsewhere provide additional state-of-the-art research and educational opportunities in marine science and hydrographic science.

The best preparation for students interested in pursuing a graduate degree in marine science or hydrographic science would be to develop a strong working knowledge in calculus, applied mathematics, statistics, the basic sciences (biology, chemistry, geology, physics) and engineering.

Experience with computers is highly recommended. We realize that not all students will have gained the ideal background for pursuing a M.S. in marine science or hydrographic science or Ph.D. in marine science. Deficiencies will normally be made up during the student's first year.

Master of Science Programs

Admission Requirements

In addition to the general admission and academic requirements for all graduate programs as set forth in this *Bulletin*, regular admission to the master's program in marine science or in hydrographic science requires successful completion of the Graduate Record Examination and a high grade point average for the last two years of undergraduate study. Successful applicants have highly competitive scores and have grade point averages of 3.0 or above. Also required are three letters of recommendation from persons qualified to assess the applicant's readiness for graduate study, which should be sent to the department. A letter of intent should also be sent to the department chair expressing personal academic, research, and career goals. This letter is used in two ways in the admission process. It provides a sample of the applicant's writing competency and communication skills, and provides information concerning the compatibility of the applicant's interests with departmental research interests. A minimum score of 560 is required on the Test of English as a Foreign Language (TOEFL) for applicants whose native language is not English. Applicants who are not eligible for regular admission may be considered for conditional admission. Students admitted conditionally must maintain a 3.0 GPA for the first nine (9) hours of coursework numbered 500 and above or on all coursework taken while completing this nine (9) hour requirement. If this requirement is not met, the student is not allowed to remain in the program. Upon recommendation by the department chair and approval by the dean, the student admitted conditionally may have his or her admission status changed to "regular admission." For students wishing to be considered for graduate assistantships for the academic year beginning in the fall semester, application materials should be received no later than March 1.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Degree Requirements for Master of Science in Marine Science

A total of 34 hours of graduate level courses (18 hours of 600 level or higher) with a minimum GPA of 3.0 must be completed in order to fulfill the master of science degree requirements. All entering graduate students must complete the four core courses, generally by the end of their first year in residence. Students advance to candidacy for the M.S. degree by completing all the core courses with a grade of B or better, successfully passing the department qualifying examination (administered after the core courses are completed), and completing a thesis prospectus. A graduate student can accumulate no more than two Cs. Other program course requirements include six (6) hours of Thesis (698) and at least two (2) hours of Seminar in Marine Science. The required courses account for 24 of the total 34 hours; the remaining 10 hours (courses numbered 600 and above) must be chosen by the student (after consultation with the student's adviser) from a list of elective courses approved by the department. In addition to the degree program requirements described in this *Bulletin*, all students in the master of science degree program must accumulate at least ten (10) days of appropriate field experience in order to successfully complete the degree program. Contact the department chair for information on appropriate types of field experience. More information on marine science degree requirements and additional course listings can be obtained by writing to the department chair. A 3.0 GPA is required to graduate.

Required Courses

	Hours
MAR 501	Biological Oceanography 3
MAR 501L	Biological Oceanography Laboratory 1
MAR 541	Marine Chemistry 3
MAR 541L	Marine Chemistry Laboratory 1
MAR 561	Physical Oceanography..... 3
MAR 561L	Physical Oceanography Laboratory 1
MAR 581	Geological Oceanography..... 3
MAR 581L	Geological Oceanography Laboratory 1
MAR 689	Seminar in Marine Science..... 2
MAR 698	Thesis 6
	Approved Electives (600 level or above)..... 10

Continuous Enrollment Requirement: Students must meet the requirement specified in the front section of this *Bulletin*.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Degree Requirements for Master of Science in Hydrographic Science

The M.S. degree in Hydrographic Science is a nonthesis degree program. A total of 36 semester hours of graduate level courses (18 hours of 600 level or higher) with a minimum GPA of 3.0 must be completed to fulfill the Master of Science in Hydrographic Science degree requirements. Students must also take a comprehensive examination. A graduate student can accumulate no more than two Cs. A 3.0 GPA is required to graduate.

Students admitted to the M.S. in hydrographic science degree program are required to complete a set of core courses. There are a total of 27 semester hours of required core coursework. Each degree-seeking student must take at least one three-hour elective course. All students admitted to the M.S. degree program in Hydrographic Science must choose from one of two options at the time they are admitted to the program. Successful completion of either Option I or Option II, in addition to passing all the required and elective courses, will constitute the completion of degree requirements. Option I is designed for those students who wish to complete a more practical field-oriented degree program. Option II is designed for students who wish to complete a more theoretical and classroom-oriented program and involves completion of a Capstone Review project, usually consisting of, but not limited to, an extended literature review of an appropriate hydrographic science topic.

Required Courses (Options I and II)

	Hours
HYD 600	Classical Geodesy4
HYD 601	Hydrographic Data Management3
HYD 602	Marine Geology for Hydrographers1
HYD 603	Law and Policy for Hydrographic Science1
HYD 604	Kinematic Positioning3
HYD 605	Applied Bathymetry3
HYD 606	Nautical Cartography and GIS3
HYD 612	Water Level2
HYD 620	Math Concepts for Hydrographers1
MAR 561	Physical Oceanography3
MAR 668	Applied Ocean Acoustics3
	Approved Elective3

Option I Required Courses

	Hours
HYD 608	Practical Hydrographic Science2
HYD 609	Nautical Science1
HYD 610	Hydrographic Science Field Project3

Option II Required Courses

	Hours
HYD 696	Capstone Review3
HYD 601	Approved Elective3

Continuous Enrollment Requirement: Students must meet the requirement specified in the front section of this *Bulletin*.

Doctor of Philosophy in Marine Science

The Department of Marine Science offers a Doctor of Philosophy in Marine Science with specialization in a wide range of marine science fields, including biological, geological and physical oceanography, marine chemistry, and hydrographic science. The Ph.D. program emphasizes excellence in research. Qualified students holding either a bachelor's or master's degree in a relevant field of science, mathematics, or computer science are encouraged to apply for admission to the Ph.D. program.

Students must meet the general requirements set forth in the *Graduate Bulletin* of The University of Southern Mississippi. The Ph.D. in marine science requires eighty-four (84) graduate hours beyond the bachelor's degree or fifty-four (54) graduate hours beyond the master's degree.

Admission Requirements

In addition to the general admission and academic requirements for all graduate programs as set forth in this *Bulletin*, regular admission to the Ph.D. program in marine science requires successful completion of the Graduate Record Examination and a high grade point average for the last two years of undergraduate study as well as a 3.50 GPA on previous graduate study. Successful applicants have highly competitive scores and have a grade point average of 3.0 or above for undergraduate work and 3.5 on previous graduate study. Also required are three letters of recommendation from persons qualified to assess the applicant's readiness for graduate study which should be sent to the department chair. A letter of intent should also be sent to the department chair expressing personal academic and research goals. A minimum score of 560 is required on the Test of English as a Foreign Language (TOEFL) for applicants whose native language is not English. For students wishing to be considered for graduate assistantships for the academic year beginning in the fall semester, application materials should be received by the department no later than March 1.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Program Requirements

Required Courses

	Hours
MAR 501 Biological Oceanography	3
MAR 501L Biological Oceanography Laboratory	1
MAR 541 Marine Chemistry	3
MAR 541L Marine Chemistry Laboratory	1
MAR 561 Physical Oceanography	3
MAR 561L Physical Oceanography Laboratory	1
MAR 581 Geological Oceanography	3
MAR 581L Geological Oceanography Laboratory	1
MAR 689 Seminar in Marine Science	2
MAR 898 Dissertation	12
Approved Electives	12*

*MAR 691, MAR 791 - Directed Research in Marine Science, MAR 697, MAR 797- Independent Study and Research, MAR 698 - Thesis and MAR 898 - Dissertation, do not count toward this twelve (12) credit hour approved elective requirement for the Ph.D. The above courses account for forty-two (42) of the total fifty-four (54) hours (students entering with a master's degree) or eighty-four (84) hours (students entering with a bachelor's degree) required for the Ph.D. Course listings for the additional 12-42 required hours can be obtained by writing to the department chair.

Other Requirements

1. The student is required to pass an oral or written qualifying examination or both.
2. Research tool(s) requirement for marine science doctoral students is tailored to the specific tools and skills needed by the student for his/her dissertation research or future career. Contact the department for specific requirements.
3. Selection and approval of a suitable research problem.
4. The student is required to pass an oral or written comprehensive examination to determine the student's comprehension of course material and the student's ability to pursue the proposed research.
5. Completion and successful defense of a scholarly dissertation based on the student's original research. (12 hours of 898 are required)
6. A 3.0 GPA is required for graduation.
7. Residency. Students must meet the residency requirements specified in the *Bulletin*.
8. In addition to the degree program requirements described in this *Bulletin*, all students in the Ph.D. degree program must accumulate at least ten (10) days of appropriate field experience in order to successfully complete the degree program. Contact the department chair for information on appropriate types of field experience.
9. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Department of Mathematics

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Adan-Bante, Chen, Contreras, Cwikla, Ding, Harris, Henry, Hornor, Kolibal, Lee, Perry, Piazza, Ross, Tian

The Department of Mathematics offers the master of science in mathematics and the doctor of philosophy in computational science with an emphasis in mathematics. Individuals interested in obtaining graduate degrees in mathematics education should contact the Center for Science and Mathematics Education. The Center offers the master of science in science and mathematics education with an emphasis in mathematics, and the doctor of philosophy in science education with an emphasis in mathematics.

Admission Requirements

Applicants wishing to enter either the master of science in mathematics degree program or the doctor of philosophy in computational science with an emphasis in mathematics degree program must satisfy the requirements of The Graduate Studies Office. Among those factors considered in the admission decision are the GPA, submission of test scores on the GRE, and three letters of recommendation from persons qualified to assess the candidate's readiness for graduate study. Letters should be sent to the department. Students whose native language is not English must achieve a score of 580 or above on the TOEFL exam.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Master of Science in Mathematics

Program Requirements

Upon completing one semester of graduate work, the student should select a three-person advisory committee from the graduate faculty. The student, with the help of his or her academic adviser, should prepare an Application for Approval of Graduate Program form. The advisor will distribute copies to the graduate faculty, the student's advisory committee, the department chair, the departmental file, and the student. The department chair and all three committee members must approve subsequent changes in the program.

The student must enroll in the two-semester advanced calculus sequence at the graduate level at the beginning of the graduate program if the equivalent of this sequence was not included in the student's undergraduate preparation. None of these courses can satisfy any part of the minimum hour requirements for the master's degree, and a grade of B or above must be earned in each of the two courses.

The following minimal requirements must be included in the program.

1. 30 hours of graduate coursework beyond the equivalent of a Southern Miss undergraduate degree in mathematics;
2. 21 hours of courses numbered above 600;
3. 18 hours of mathematics courses numbered above 600;
4. 3.0 GPA for graduation; and
5. a comprehensive examination.

NOTE: Subject to approval of the department chair and the student's advisory committee, an outside minor consisting of nine (9) semester hours may be used as a portion of the 30-hour program.

Courses offered by the department are grouped into nine areas. The student with the help of his or her academic adviser should select a suitable balance in at least three of the nine areas.

Nine Specialty Areas

1. Topology/Geometry: 572, 575, 601, 683
2. Complex Analysis: 536, 636, 682
3. Algebra: 521, 523, 524, 603, 681
4. Linear Algebra: 526, 610, 681
5. Analysis and Probability: 520, 641, 642, 682, 684
6. Combinatorics and Graph Theory: 537, 539, 629
7. Computational Mathematics: 560, 561, 610, 684, 685
8. Differential and Partial Differential Equations: 515, 517, 605, 606, 684, 685
9. Optimization: 518, 519, 684, 685

The focus of the master's program is computational mathematics. This is reflected in its course scheduling. The courses 560, 561, (area 7); 526, 610, (area 4); and 605, 606 (area 8) are scheduled biannually. Thus, these courses can form the core (three areas) for most, if not all, students. However, areas other than these three are offered in response to the interests and research of the graduate faculty.

Each candidate for the master's degree will be expected to demonstrate subject matter mastery on the master's comprehensive examination. For the non-thesis student, the master's comprehensive examination is a written examination, it must be successfully completed two weeks prior to graduation, and it will cover the content of two courses (selected by the advisory committee in consultation with the student) from each of the student's three areas of specialization. For the thesis student, the master's comprehensive examination is an oral examination that will be primarily a defense of the thesis.

The student who desires to write a thesis must select a graduate faculty member who agrees to serve as thesis director. Prior to beginning the thesis, a student must submit (for approval to his or her advisory committee) a prospectus, the guidelines for which are available in the departmental office.

Summary of Important Events for the Thesis Option

1. Arrange for a graduate advisor during the second semester;
2. Gain approval of a written thesis prospectus from the master's advisory committee by the end of the second semester;
3. Pass a comprehensive examination and successfully defend the thesis by the end of the fourth semester; and
4. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Doctor of Philosophy Degree: Computational Science (Mathematics Emphasis)

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Program Requirements

Students must complete the nine-hour core: MAT 771 (Functional Analysis for Computational Science), MAT 772 (Numerical Analysis for Computational Science), and MAT 773 (Signal Analysis for Computational Science). They must also complete the techniques courses (COS 701, 702, 703), and include four hours of Seminar (COS 740).

Students must meet the general requirements set forth by The Graduate Studies Office: 54 hours beyond a masters and 84 hours beyond a bachelor's degree. A 3.0 GPA is required to graduate. For students entering the program with only a bachelor's degree, successful completion of the master of science in mathematics is required. The following are additional requirements:

1. Pass the comprehensive examination by the end of the sixth semester covering the core courses;
2. Gain approval of a written prospectus from the doctoral advisory committee by the end of the fourth semester and pass qualifying examination on research prospectus;
3. Research Tool(s): Research tool(s) are required and will be determined by the student's doctoral committee;
4. Successfully defend the dissertation by the end of the sixth year;
5. Fulfill the research tool requirement as specified by the doctoral advisory committee and approved by the department chair.
6. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.
7. Residency: Students must meet residency requirements set forth in the front of this *Bulletin*.

Department of Physics and Astronomy

Khin Maung Maung, Ph.D., Chair
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Biswas, Gandy, Gearba, Lee, Maung, Mead, Pandey, Sirola, Vera, Whitehead, Winstead

The Department of Physics and Astronomy offers or participates in programs leading to the Master of Science in Physics and the Doctor of Philosophy in Computational Science with an emphasis in Physics. At the master's level, the department offers a traditional master's program in physics as well as emphasis areas in computational science and polymer science. At the doctoral level, the department participates in the Computational Science Ph.D. program.

Admission Requirements

All applicants must satisfy the admission requirements of The Graduate Studies Office as outlined in the *Graduate Bulletin*. Admission to graduate programs in physics is based upon several factors including a student's previous academic performance, recommendation letters (minimum of three), and scores on the Graduate Record Examination (GRE). Letters of recommendation should be from persons qualified to assess the applicant's readiness for graduate study and should be sent to the physics department. A minimum TOEFL score of 540 on the paper-based examination or 207 on the computer-based examination is required of those applicants for whom English is not their native language. It is recommended, but not required, that students applying for a stipend take the Advanced Physics GRE.

Prospective master's degree students should have completed mathematics through differential equations, and satisfactorily completed courses in introductory physics, mechanics, electricity and magnetism, modern physics, and quantum mechanics at the undergraduate level. Applicants possessing a bachelor's degree in physics may apply for regular admission to the Ph.D. program but will earn a master's degree in physics as part of a successful progress through the Ph.D. program. Such applicants possessing only a bachelor's degree will be formally admitted into the master's degree program and will officially enter the Ph.D. program after earning a master's degree.

Applicants who hold a degree in physics but are inadequately prepared or those possessing a degree in a field other than physics may be granted conditional admission but will be required to complete makeup courses with a grade of B or better. The Graduate Studies Office specifies additional requirements for conditional admission. The department chair may impose additional requirements as well. Students admitted conditionally should communicate with the chair to outline the requirements for removing conditional status. Conditionally admitted students must earn a 3.0 GPA on the first 9 hours or all hours taken the semester the 9 hours are completed.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Master of Science Program in Physics

Program Requirements

1. completion of a minimum of thirty (30) hours of graduate work with a 3.0 GPA (18 hours must be at the 600 level or higher). A 3.0 GPA is required to graduate.
2. completion of the physics core courses:
PHY 601, 602, 603, 650 12 hours
3. PHY 689 (I, II, III, IV): Physics Seminar 4 hours
4. satisfactory completion of a comprehensive examination
5. development and completion of an original research project, thesis, and oral defense:
PHY 698: Thesis 6 hours
6. Electives 8 hours
7. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Master of Science in Physics with an Emphasis in Polymer Physics

Program Requirements

Students choosing this optional program to the M.S. in physics must have successfully completed at least one full year of general chemistry with laboratory and it is strongly recommended that one semester of organic chemistry be taken for credit. Attendance at relevant seminars in the School of Polymers and High Performance Materials is required.

1. completion of a minimum of thirty (30) hours of graduate work with a 3.0 GPA (18 hours must be at the 600 level or higher). A 3.0 GPA is required to graduate.
2. completion of the physics core for the polymer option:
PHY 601, 602, 603, 650, 689 (I, II, III) 15 hours
3. polymer science coursework (at least 9 hours from the following):
PSC 710, 711, 712, 730, 811, 812 9+hours
4. satisfactory completion of a comprehensive examination
5. development and completion of an original research project, thesis, and oral defense
PHY 698: Thesis (in the area of polymer physics) 6 hours
6. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Master of Science in Physics with an Emphasis in Computational Science

Program Requirements

Proficiency in C, C++, or Fortran programming is required for students participating in this emphasis area. Students lacking this background should complete a programming course early in their graduate program.

1. completion of at least thirty-one (31) semester hours with a 3.0 GPA (18 hours must be at the 600 level or higher). A 3.0 GPA is required to graduate.
2. completion of physics core courses: PHY 601, 602, 603, 650..... 12 hours
3. PHY 689 (I, II, III, IV): Physics Seminar 4 hours
4. satisfactory completion of a master's level comprehensive examination covering physics core areas (at the level of PHY 601, 602, 603, 650).
5. satisfactory completion of computational techniques courses: COS 701, 702, and 703 9 hours
6. completion of an original computational research project, thesis, and oral defense
PHY 698: Thesis 6 hours
7. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies -click on "Current Students" and then the "Plans of Study" link.

Doctor of Philosophy Program in Computational Science with an Emphasis in Physics

Program Requirements

All doctoral degrees require a minimum of eighty-four semester hours of coursework beyond the bachelor's degree or fifty-four semester hours of coursework beyond the master's degree. A 3.0 GPA is required for graduation. Additional program requirements include those listed below.

1. for students entering the program with only a bachelor's degree, successful completion of the master of science degree in physics is required.
2. satisfactory completion of required computational techniques courses: COS 701, 702, and 703 9 hours
3. satisfactory completion of computational physics core courses: PHY 710 and 711..... 6 hours
4. satisfactory completion of a Ph.D. comprehensive examination covering computational physics (at the level of PHY 710 and 711). A maximum of two attempts to pass the Ph.D. comprehensive is allowed.
5. completion of computationally intensive original research of sufficient quality to allow the preparation and successful defense of a Ph.D. dissertation. (12 hours of 898 are required)
6. continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.
7. Residency: Students must meet residency requirements as specified in this *Bulletin*.
8. Research Tool(s) are required and are determined by the student's doctoral committee.

School of Polymers and High Performance Materials

Robert Y. Lochhead, Ph.D., Director
118 College Drive #10076
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(601) 266-4868

Hester, Hoyle, Lochhead, Mathias, Mauritz, McCormick, Morgan, Nazarenko, Otaigbe, Rawlins, Storey, S. Thames, Urban, Wiggins

The School of Polymers and High Performance Materials offers programs at the master's and doctoral levels. Curricula are designed to provide both a fundamental understanding of polymer chemistry and engineering and advanced courses dealing with special topics and state-of-the-art subjects. Both the M.S. and Ph.D. degrees require extensive research in areas involving basic investigations and developments applied to current and future problems of our society and world.

Master of Science Program

Admission Requirements

Admission to the master's program is based upon previous academic performance and scores on the general section of the Graduate Record Examination. Requirements include the following: a minimum grade point average of 2.75 or better on the last 60 hours of undergraduate work, a 3.0 GPA in major, three letters of recommendation from persons qualified to assess the applicant's readiness for graduate study (letters should be sent to the school), and submission of scores on the GRE.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Program Requirements

Specific details of the admission and program requirements are outlined in a separate handbook provided by the School of Polymers and High Performance Materials.

Graduation is based upon

1. completion of 54 hours of graduate work including the 21 hours of PSC core courses with a GPA of 3.0 or better (18 hours must be at the 600 level or higher);
2. satisfactory development of an original research project and a thesis (6 hours of 698 required);
3. satisfactory completion of the final comprehensive examination
4. continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Required Coursework

PSC 701, 702, 710, 711, 720, 721, 730, and 703 or 712	21 hours
PSC 691, 698: Research in Polymer Science and Thesis	10-45 hours
PSC 789: Polymer Science Seminar	1-4 hours

Doctor of Philosophy Program

Admission Requirements

The school admits students only to the master's program because of the diversity of entering students' backgrounds. Demonstrated excellence is required in coursework and examinations before a student is allowed to enter the doctoral program. Admission of students with previous graduate coursework or master's degrees from other institutions will be considered on an individual basis.

Regular admission to advanced standing requires (1) obtaining a minimum GPA of 3.0 on the 26 hours of core courses; (2) obtaining a minimum GPA of 3.5 in at least 30 hours of graduate courses taken at Southern Miss including the core courses and research; and (3) passing all three sections of the written comprehensive examination.

Additional requirements for the Ph.D. degree dealing with residency, the research tools, the committee, the dissertation, the dissertation defense, application for candidacy, and graduation are described elsewhere in this *Bulletin*.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies -click on "Current Students" and then the "Plans of Study" link.

Program Requirements

Specific details of the admission and program requirements are outlined in a separate handbook provided by the School of Polymers and High Performance Materials.

Minimum course requirements for the doctorate are eighty-four (84) semester hours of coursework beyond the bachelor's degree. Fifty-four (54) semester hours are required beyond a master's degree in polymer science or a related area. Doctoral students must take all core courses (PSC 701, 702, 703, 710, 711, 712, 720, 721, 730, 740) as well as two 800-level courses that are offered. Graduate students must register for one hour of polymer science seminar (PSC 789) each semester that they are in residence. A 3.0 GPA is required for graduation. Students must take 12 hours of 898 (dissertation) and 3 hours the semester they defend the dissertation.

Research Tool(s)

See department chair for specific requirements. (Handbook)

Residency

Students must meet the residency requirements specified in this *Bulletin*.

Comprehensive Examination

The written comprehensive examination serves as the qualifying examination for the Ph.D. program, and is given twice a year at the end of the fall and spring terms. This three-part examination covers the areas of organic, physical, and practical polymer science.

A student who fails any part of the examination must retake and pass that part at the end of the fall term. Only one additional attempt is allowed.

Dissertation Prospectus

Within nine (9) months of completing the written comprehensive examination, a written dissertation prospectus that includes an annotated bibliography must be approved by the student's committee. The prospectus summarizes the student's work accomplished to date and gives an outline of research objectives for the dissertation project.

Proposition Presentation and Oral Defense

Within 18 months of completing the comprehensive examination, the student must submit an independently conceived and developed written proposal dealing with an original proposition unrelated to his or her dissertation research. This proposal is then presented orally and defended before the faculty. Oral evaluation of the student's general knowledge of polymer science is carried out concomitant with his or her defense of the proposal.

Continuous Enrollment Requirement: Students must meet the requirement specified in the front section of this *Bulletin*.

Sports and High Performance Materials Degrees

Marek W. Urban, Ph.D., Director
School of Polymers and High
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(601) 266-4868

Susan Hubble-Burchell, Ph.D., Director
School of Human Performance
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PSC faculty: Hester, Hoyle, Lochhead, Mathias, Mauritz, McCormick, Moore, Morgan, Nazarenko, Otaigbe, Rawlins, Storey, S. Thames, Urban

HPR faculty: Gould, Krebs, Marciani, Phillips, Piland, Webster, Wiggins

The Sports and High Performance Materials research degree is collaboration between two of the universities premier research schools, the School of Polymers and High Performance Materials and the School of Human Performance and Recreation. The educational objectives of the program are to create multidisciplinary scientists who have the specific advanced research skills in polymer science, exercise physiology and biomechanics, and who are capable of developing new materials that significantly improve athletic and human performance.

Master of Science Program**Admission Requirements**

Admission to the master's program is based upon previous academic performance and scores on the general section of the Graduate Record Examination. Requirements include the following: a minimum grade point average of 2.75 or better on the last 60 hours of undergraduate work, a 3.0 GPA in major, three letters of recommendation from persons qualified to assess the applicant's readiness for graduate study (letters should be sent to the school), and submission of scores on the GRE.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Degree Requirements

Specific details of the admission and program requirements are outlined in a separate handbook provided by the Sports and High Performance Materials Program.

Graduation is based upon

1. completion of 33 hours of graduate work including the 27 hours of PSC and HPR core courses with a GPA of 3.0 or better;
2. satisfactory development of an original research project and a thesis (6 hours of 698 required);
3. satisfactory completion of the final comprehensive examination
4. Arrange for graduate advisor by the end of the first semester.
5. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Required Coursework

PSC 701, 702, 710, 712, 820,820L.....	17 hours
HPR 701, 701L, 704, and 834.....	11 hours
PSC/HPR 691, 698: Research and Thesis.....	10-45 hours

Doctor of Philosophy Program

Admission Requirements

Demonstrated excellence in coursework, passing the cumulative examinations and passing of an oral examination that follows a written independent research proposal is necessary for a student to formally enter the doctoral program. Admission of students with previous graduate coursework or master's degrees from other institutions will be considered on an individual basis. A 3.5 GPA in masters course work is require for regular admission.

Admission to candidacy requires:

1. No more than 2 grades lower than a B in the first 27 hours of core courses;
2. A minimum GPA of 3.5 in at least 30 hours of graduate courses taken at USM, including the core courses and research;
3. Passing nine (9) of eighteen (18) cumulative examinations; comprehensive exam.
4. Passing an Oral Examination that follows the completion of a written Independent Research Proposal; and
5. Arrange for graduate advisor by the end of the first semester.
6. Continuous enrollment - Students must meet the requirement specified in the front section of this *Bulletin*.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Degree Requirements

Minimum course requirements for the doctorate are fifty-one (51) hours beyond the master's degree.

Required Coursework

PSC 701, 702, 710, 712, 820,820L.....	17 hours
HPR 701, 701L, 704, and 834.....	11 hours
Approved 800 level electives.....	9 hours
PSC/HPR 791, 898: Research and Dissertation (12 hrs of 898 required)	10-45 hours

Center for Science and Mathematics Education

Sherry Herron, Ph.D., Director
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Affiliates: Bateman, Brown, Contreras, Curry, Cwikla, M. Davis, Ding, Gandy, Heinhorst, Henry, Herron, Hudson, Johnson, Lee, McDowell, Moore, Peters, Pope, Pye, Ross, Russell, Sirota, Walker, Whitehead, Yuen

The Center for Science and Mathematics Education, recognizing the national goal of improving the delivery of science instruction and the accompanying demand for individuals with advanced degrees in science education, provides programs for the Master of Science and Doctor of Philosophy in Science and Mathematics Education.

Master of Science Program

The program of study at the master's degree level is designed to increase the professional competency of science and mathematics teachers and to provide the coursework necessary to meet standards of teaching certification at this advanced level. The Master of Science in Science Education degree is offered with an emphasis in biology, chemistry, coastal science, marine science, mathematics, earth and environmental sciences, or physics. The program outcomes expressed in terms of student learning include demonstration of (a) graduate-level mastery of knowledge in the student's selected emphasis area; (b) the ability to integrate content knowledge into curricular, instructional, and assessment strategies for students at different educational levels; and (c) the ability to formulate, implement, and sustain changes in reforming science education to meet national standards at a school level.

Admission Requirements

In addition to the general admission and academic requirements for all graduate programs as set forth in this *Bulletin*, regular admission to the master's program in science education requires a bachelor's degree in any area of science (or combination of science and professional education) and a minimum grade point average of 3.0 in undergraduate study. A Mississippi Department of Education Class-A license is required if advancement to a Class-AA licensure is desired. Applicants are required to present to the center director for consideration verbal and quantitative scores on the Graduate Record Examination, three letters of recommendation from persons qualified to assess the applicant's readiness for graduate study (letters should be sent to the center), and a one- to two-page statement of the applicant's teaching philosophy in the areas of knowledge to be addressed, teaching methodology, and assessment.

Students who fail to meet the criteria for regular admission may be considered for conditional admission if the Program Admissions Committee, center director, dean of the college, and University Director of Graduate Studies are satisfied that the applicant shows promise of successfully completing graduate degree requirements. Regular admission will be granted with the completion of nine (9) semester hours of Southern Miss graduate work (500 level or higher) with a minimum of a B average on all courses taken while completing this nine (9)-hour requirement, the removal of deficiencies, and a positive recommendation from the student's adviser.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **first semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Degree Requirements

The master's degree requires a minimum of thirty-four (34) semester hours of graduate work with a 3.0 GPA as specified below (18 hours must be 600 level or higher)

- (a) Twenty-one (21) semester hours in a content area with a minimum of 12 hours in the emphasis area and a minimum of 3 hours in a related discipline
- (b) Six (6) semester hours in professional education (REF 601 and REF 607 if seeking AA certification in the State of Mississippi)
- (c) Seven (7) semester hours in science education (including SME 601, SME 561, and limiting hours of special problems to 3 semester hours)

After completing 18 semester hours of required courses, the student should arrange a three-member graduate committee with the approval of the Center Director. To graduate, students must complete an approved program of study with a 3.0 grade point average, complete written comprehensive exams or compile and submit a portfolio showing evidence of mastery of the program learning outcomes, and pass an oral comprehensive examination. The student's graduate committee will be responsible for monitoring the student's progress, administering the comprehensive examination, and determining if all criteria have been met for graduation.

Continuous Enrollment Requirement: Students must meet the requirement specified in the front section of this *Bulletin*.

Doctor of Philosophy Program

The Center for Science and Mathematics Education offers programs leading to the Doctor of Philosophy in Science Education with emphasis in biology, chemistry, coastal science, computer science, earth and environmental sciences, marine science, mathematics, medical technology, physics, or polymer science.

Within the framework of the overall curriculum requirements, programs are planned to accommodate the professional goals of the individual graduate student. For students holding Class-AA certification from the Mississippi State Department of Education, the doctoral program in each emphasis area can be planned to provide for Class-AAAA advanced certification if desired. Graduates of the program are prepared as candidates for teaching positions at the secondary school, community college, and senior college levels as well as positions in curriculum supervision, curriculum development, educational research, and the informal delivery of education in their chosen discipline.

Admission Requirements

In addition to the general admission and academic requirements for all graduate programs as set forth in this *Bulletin*, regular admission to the doctoral program in science education requires a master's degree, a Class-AA teaching certificate in one of the emphasis areas if an advance in certification to Class-AAAA is desired, three years of teaching experience at the secondary or college level, and a minimum GPA of 3.5 for all previous graduate work. Applicants are required to present for consideration verbal and quantitative scores on the Graduate Record Examination, three letters of recommendation, and a letter of intent expressing academic, professional, and research goals to the center director. Letters of recommendation should be from persons qualified to assess the applicant's readiness for graduate study and should be sent to the center.

Initial admission to the program will be conditional for all students. Students are expected to possess proficiency at the undergraduate level in the chosen emphasis for advanced study. Students not proficient may be required to take additional undergraduate courses. Regular status will be granted with the completion of 9 semester hours of Southern Miss SME graduate courses numbered 600 level or higher with a 3.25 GPA, a positive recommendation from the center director, the removal of any deficiencies, and acceptable performance on the qualifying examination.

Plan of Study. Students must submit their signed, official *Plan of Study Form* to the Graduate Studies Office by the end of the **second semester** they are enrolled. The *Plan of Study Forms* are available at www.usm.edu/graduatestudies - click on "Current Students" and then the "Plans of Study" link.

Program Requirements

The doctoral degree in science education requires a minimum of fifty-seven (57) semester hours of graduate work beyond the master's degree, excluding the hours for the dissertation and research tool requirements, as specified below.

- (a) Twenty-four (24) semester hours in a content area with a minimum of 15 hours in an emphasis discipline
- (b) Twenty-four (24) semester hours in science education including three (3) semester hours of seminar, SME 691, SME 701, SME 703, SME 700 or SME 720, and SME 725 for students in the mathematics emphasis with a maximum of nine (9) semester hours of SME 791 and a maximum of three (3) semester hours of SME 792
- (c) Nine (9) semester hours of electives to be chosen from science education, emphasis discipline, or related discipline and with a minimum of three (3) hours in professional education.
- (d) Comprehensive exam
- (e) Dissertation and oral defense of dissertation (12 hrs of 898 required)

Research Tool

Additional requirements include demonstrated proficiency in a research tool, usually educational statistics (REF 761 and 762) and independent research culminating in an acceptable dissertation. The research may focus on a problem in the student's emphasis area that is related to the teaching/learning of the discipline or a more general educational research problem.

Qualifying Exam

The department requires a written qualifying examination. This examination is designed to assess both the student's fitness to pursue doctoral work and to provide diagnostic information to the student's committee in planning a program. The student's program will be directed by a five-member graduate committee consisting of two faculty members affiliated with the Center for Science and Mathematics Education, one from the emphasis discipline, one from educational research, and one open for selection according to the student's research focus. The committee will approve the student's program plan and dissertation prospectus, and conduct the comprehensive examination, which is administered near the completion of the student's coursework. Upon acceptance of the dissertation by the student's committee and at least four weeks prior to graduation, a final oral examination in defense of the candidate's dissertation will be administered.

Residency

Students must meet the residency requirements specified in this *Bulletin*.

Continuous Enrollment Requirement: Students must meet the requirement specified in the front section of this *Bulletin*.