

DEPARTMENT OF MARINE SCIENCE
THE UNIVERSITY OF SOUTHERN
MISSISSIPPI



GRADUATE STUDENT HANDBOOK
2008-2009

This handbook is provided as a general guide for DMS graduate students. The USM Graduate Bulletin should be consulted for official university and departmental policies. Additional information about DMS policies can be obtained from your advisor, the USM Bulletin, the department chair, or the departmental web page: <http://www.usm.edu/marine>.

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INTRODUCTION

The University of Southern Mississippi has been given the leadership role in marine science in Mississippi by the Board of Trustees of State Institutions of Higher Learning. In 1986, the University established the Center for Marine Science at the John C. Stennis Space Center (SSC), located near Bay St. Louis, Mississippi. Degree-granting status was awarded to the Center in 1987 for the Master of Science (M.S.) degree, and in 1990 for the Doctor of Philosophy (Ph.D). The Department of Marine Science (DMS) is an academic department within the College of Science and Technology. Although marine science is inherently multi-disciplinary, students will generally specialize in physical oceanography, biological oceanography, geological oceanography, or marine chemistry. In addition to the marine science degree program, DMS established in 1999 an intensive one year M.S. program in hydrographic science and a Ph.D. in marine science with an emphasis in hydrographic science.

FACILITIES

Research Facilities and Associate Faculty

The Department of Marine Science occupies offices and laboratories in Buildings 1020, 1022, and 1206 in Stennis Space Center's administrative complex. Most faculty offices are located in Building 1020. Graduate students' offices are concentrated in Building 1020 for Marine Science and Building 1206 for Hydrographic Science, where there are computer labs and conference rooms. Construction of a new Oceanographic Support Facility was begun in 2008 which will greatly enhance facilities for carrying out marine operations at Stennis.

In the various DMS laboratories, a considerable array of research equipment is available including a high-resolution inductively coupled plasma mass spectrometer (ICP-MS), gamma ray and alpha particle spectrometers, spectrophotometers, high performance liquid chromatographs, fluorometers, carbon-nitrogen analyzer, liquid scintillation counters, nutrient analyzers, image analyzers, and analytical balances. The department operates various underwater vehicles including autonomous underwater gliders, remotely operated vehicles, towed instrument systems, and a \$1.3M autonomous underwater vehicle known as the "Eagle Ray". There is also an array of other equipment including molecular biological instrumentation, instruments for determining underwater physical and optical properties, and extensive computer and networking facilities.

The Department's location at Stennis Space Center gives it proximity to a variety of other agencies' facilities with which many of our adjunct faculty members are associated. Agencies include in the Naval Research Laboratory, the Naval Oceanographic Office, the National Oceanic and Atmospheric Administration, the National Atmospheric and Space Administration, and the Environmental Protection Agency.

The Gulf Coast Research Laboratory is located in Ocean Springs, Mississippi, (65 miles east of SSC). GCRL faculty and staff engage in a large number of applied research projects concerned with Mississippi's marine resources. GCRL faculty members participate in USM academic programs mainly through the Department of Coastal Sciences and primarily through the summer months.

Students may also interact with marine science-oriented faculty located on the main campus in Hattiesburg, about 75 miles north of SSC. The Departments of Biological Science and Geography and Geology have marine science-oriented faculty and many faculty members in the Departments of Chemistry & Biochemistry, Physics, and Polymer Science as well as members of the Computational Sciences program interact with DMS faculty and students.

Most of our faculty members conduct sea-going research as well as coastal and laboratory based studies. Graduate students are required to participate in at least ten days of field experience. Research projects will often include access to the research vessels, for example, through the University National Oceanographic Laboratory System (UNOLS). DMS operates three boats, including the 22' Carolina skiff, 22' McKee Craft, and 29' R/V *LeMoyné*. Users must be certified by the DMS Vehicle and Vessel Committee. Some small boats for local use are available at GCRL, which also operates the 97' R/V *Tommy Munro* and the 55' R/V *Tom McIlwaine*.

In summary, students have access to a wide range of facilities and resources to help them accomplish their educational and research goals.

Library Facilities

The Maury Oceanographic Research Library, operated by the Naval Oceanographic Office (NAVOCEANO), has an extensive collection of oceanographic reference sources. The Maury Library collection specializes in areas of oceanography, remote sensing, environmental sciences, and engineering. Students and faculty also have access to numerous electronic subscriptions which can be accessed through workstations at the library. Hours are 7:30 a.m. to 3:00 p.m, Monday through Friday. Interlibrary loan

services are available from Maury Library without charge. For library privileges, students must present current SSC site identification badges. The library provides free photocopying of library materials (one copy only per article). The library catalog can be accessed on-line at <http://library.navo.navy.mil/>.

There are two libraries available at The University of Southern Mississippi's Hattiesburg campus, the Cook Library and the McCain Library and Archives. The USM Library Web site (<http://www.lib.usm.edu/>) provides access to the library catalog, and numerous electronic databases such as ISI Web of Science, ScienceDirect, and GEOREF and other e-resources. Interlibrary loans are also available through the Illiad system. Library hours include evening (until 10 PM) and weekend hours.

The GCRL operates the Gunter Library, located in the Caylor Building on the GCRL campus. In addition to housing many fisheries and mariculture journals that the Maury Library does not carry, the Gunter Library has many research reports written by GCRL personnel.

USEFUL INFORMATION

Security at Stennis Space Center

All personnel are required to wear identification badges for security purposes at SSC. Contact Bridgett May, Administrative Office, Building 1020, Room 120 for an application. Applications for badges require a background investigation. Temporary passes are also required for guest access to the facility and require some form of identification. These can be obtained at the North and South Gate reception centers. Your vehicle will be subject to inspection at any time while on site as well as entering and leaving SSC. USM ID cards are available and may be required for university-associated activities. Contact Bridgett May, 228-688-3175, for further information about obtaining a university ID. Access to SSC during evenings, weekends, and federal holidays is limited to official departmental business only. Outside of normal working hours, personnel should restrict their movement on-site to DMS facilities.

Phone System

To call a number from one location to another on site use the last five digits. For directory assistance, call 83390. Use of the phone system for long distance calls should be limited to official business only.

Transportation

Use of departmental vehicles is **restricted to official business**. Vehicles use must be scheduled and the vehicle logged out. Charges for use will be assessed to either a research project or to the department based on mileage.

There is an on-site taxi that may be used for a charge, and the Department has two pick-up trucks and 2 vans for business and research use. All other transportation to and from SSC is by **personal vehicle**, unless otherwise approved. Greyhound bus lines have routes along the coast, but do not come to SSC and Amtrak operates a station in Picayune, Mississippi. The Gulfport and Louis Armstrong International (New Orleans, La.) airports provide a wide range of domestic and international flights. Carpools are also available. For information about car pooling, consult the bulletin boards in Building 1100. Consult faculty and other students for information regarding obtaining a driver's license and purchasing a car if desired. Students are expected to drive safely at all times and to obey SSC driving policies. *Repeated driving violations while on-site at SSC may result in revocation of driving privileges.*

Housing

You will be responsible for your own living accommodations. The closest available housing is ~15 miles from SSC, and you will need to provide your own transportation or arrange to car pool. Most faculty and students live in the surrounding communities of Long Beach, Pass Christian, Bay St. Louis, Waveland, Diamondhead, and Picayune in Mississippi and Slidell, Louisiana (all of these towns are 20 to 30 miles from SSC). Monthly rental fees range from \$700 for a one bedroom apartment, \$700-\$800 for a two bedroom apartment, \$900 two bedroom house or \$900-\$1000 for a three bedroom home. For further information, consult a current student or faculty member.

Child Care Center

On-site childcare is available for a cost to SSC personnel who have young children. The NASA Child Care Center, located on Road H, east of Building 2105, offers a unique developmental childcare program for younger children from 6 weeks to 5 years old. Both non-handicapped and mildly handicapped children are accepted. The center is open Monday through Friday from 6:30 A.M. until 5:30 P.M. and will be closed on all legal federal holidays. Though the center does not accept drop-ins, a parent may enroll for 2, 3, or 4 days a week, as well as 5 days (full-time). Contact the Child Care Center for current monthly tuition: x83224.

Dining Facilities

A cafeteria is located in Building 1100. Breakfast and lunch are served Monday through Friday. They serve hot meals, salad bar and sandwiches. A snack bar, with microwave, is located next to the cafeteria for fast foods, open from 8:30 to 4:30. The Cypress House is the only location at SSC where consumption of beer or wine is permitted. It is open from 3:30 p.m. to 7:00 p.m. The Visitor Center "Rocketeria" also serves lunch from 11 a.m. to 3 p.m. weekdays. S.O.S. provides a microwave and refrigerator in both Building 1020 and Building 1206 for student use. There are also vending machines located in almost every building for soda and snacks. You will need to "brown bag it" if you are planning to work after 4:30. Off site there are many fine restaurants along the Gulf Coast of Mississippi, in Slidell, La., and throughout New Orleans.

Banks

Hancock Bank and Keesler Federal Credit Union have branch offices located in Building 1100 and both offer a full range of banking facilities for the convenience of all employees and students. Hancock Bank also has a drive through facility located on Road H. Contact the banks for hours of operation.

Support Services at SSC

A barbershop, travel agency, dry cleaners and clinic are located in Building 1100. A gas station, located on Road J is open until 5:00 p.m., but one can "pay at the pump" at any time. They also provide limited service and maintenance.

Recreational Activities

The SSC Wellness Center, located on Road H, offers aerobic exercise classes, Cybex and free weight training equipment, an outdoor running track, 25 yd pool, and nutritional and health guidance. The fee is \$15/month or \$150/year. For further information, contact x83950. Elsewhere at SSC, there are volleyball fields, softball leagues, a tennis club, shooting range, basketball courts and running areas. The Stennis Recreation Association (x82411) arranges various on- and off-site activities (e.g., radio club, gun and archery club, softball club, and wildlife conservation club).

Attractions and Entertainment

The Gulf Coast provides many attractions. Attractions include a 26-mile man-made public beach along the Gulf Coast, tours to Ship Island with Fort Massachusetts, canoeing along the Wolf River, great golf courses, and deep sea or bayou fishing, just to mention a few. The numerous casinos on the Gulf Coast provide a variety of concerts

and featured performers as well as some excellent restaurants. Of course, New Orleans has a myriad of fun things to do, only one hour away. New Orleans is famous for the Aquarium of the Americas, the French Quarter, Audubon Zoological Gardens, New Orleans Opera, New Orleans Symphony, Riverboat Tours, numerous museums, world-class restaurants, and a variety of nightclubs. One of the best-known aspects of life in this area is Mardi Gras, celebrated with parades and parties in the two weeks prior to Lent. New Orleans is also known for other special events such as the Jazz and Heritage Festival usually held in the spring at the New Orleans Fairgrounds and featuring premier musicians from all genres. The French Quarter festival is another enjoyable event, usually held prior to the Jazz and Heritage Festival and featuring more local performers. Two hours to the east are Mobile, Ala., and Pensacola, Fla., where you can find clear water, large beaches and access by car to barrier islands.

Student Oceanographic Society

The Student Oceanographic Society is an organization that promotes the Department of Marine Science, acts as forum for student views, and fosters exchange of ideas for students in the career of marine sciences.

Emergency Health Care

Dial 911 for any emergency, including medical and fire. Security can be reached at x83636.

For medical emergencies during business hours, you can also go to the clinic in Bldg. 1100. For routine medical care, the Department recommends the USM Clinic on the Hattiesburg main campus. Students are required to have some form of medical insurance and a policy is available to graduate students for a cost. Contact Bridgett May (228-688-3175) or the Department of Human Resources at (601-266-4050) for more information.

MARINE SCIENCE PROGRAM POLICIES

Registration

Registration is held approximately one week before classes begin at SSC. It is the student's responsibility to consult with his or her advisor, select courses, and register in a timely manner. Failure to do so may result in late registration fees (contact Bridgett May at 228-688-3175 for details on course offerings, registration time and place, and registration materials that are needed following advisement; books may be purchased at time of registration). Early registration for continuing students can be accomplished

by the use of the Southern's On-line Accessible Records (SOAR.usm.edu). See the Class Schedule Guide for instructions for registration by S.O.A.R. or visit the Registrar's website at www.usm.edu/registrar/.

Program Requirements

The Department of Marine Science offers a curriculum designed to familiarize students with the interdisciplinary field of marine science as well as allow for specialization in one of five major sub fields: biological oceanography, chemical oceanography, geological oceanography, physical oceanography, and hydrographic science. A total of 34 hours of graduate level courses with an overall GPA of 3.0 or better is required for graduation. For the Doctor of Philosophy, the requirement is 84 hours of graduate work beyond the bachelor's degree or 54 units beyond the master's. Students may not accumulate more than two C's in their course work. For the marine science program, a grade of B or higher (quality points of 3.0 or higher) must be earned in each of the core courses and core course laboratories in order to advance to the qualifying exam.

All entering Marine Science students must complete the four core courses (Physical Oceanography and Marine Chemistry in the fall semester and Biological and Geological Oceanography in the spring semester) plus their associated labs, preferably by the end of their first year in residence. A grade of B or better (3.0 quality points per credit hour) must be obtained in all core courses to proceed with the degree program. A student who does not earn a B (3.0 quality points per credit hour) or higher in each of the core courses and core course laboratories will be required to perform remedial work or to retake the course before being allowed to advance to the Departmental Qualifying Examination. A student may remediate up to two courses under this policy. Note that a grade of B- (2.7 quality points per credit hour) is not considered satisfactory performance in the core courses. Furthermore, an overall GPA of 3.0 or above and no grade below a C are required for graduation. Students should consult with their advisor or the course instructor for more information. Additional program requirements can be found in the USM Graduate Bulletin. Students are required to be familiar with the information in the graduate bulletin catalog for the year that they enter the program. The courses and requirements listed for that year are the ones that must be fulfilled to graduate. An electronic version of the bulletin can be downloaded from the USM website (<http://www.usm.edu/registrar/bulletins/graduate/index.php>). Additional program requirements are described in Appendix I.

For students working on a thesis or dissertation, open communication between faculty and students allows for creative development of elective course offerings to support individual thesis research projects. Course offerings for each semester are distributed

about 2 months prior to registration. Contact Bridgett May (228-688-3175) or go to the department website for a current listing. You are also permitted, with the approval of your advisor, to take courses offered at the USM main campus in Hattiesburg or the teaching site at GCRL, but be advised that it is a ~90 min commute each way. Students are encouraged to consult the USM class schedule for more information (http://www.usm.edu/registrar/class_schedule_guide/index.php). Class schedule information can also be accessed through S.O.A.R. (SOAR.usm.edu).

Interim Faculty Advisor and Committee

Upon acceptance, students in marine science are assigned an interim faculty advisor and an interim advisory committee consisting of three additional faculty members, one from each of the four major disciplines: Biology, Chemistry, Geology, and Physics. Students should meet regularly with their advisor and interim committee members beginning in the semester they enter the program. The purpose of the committee is to provide the student with advice regarding course work and possible thesis topics. In addition, the committee administers the oral Qualifying Examination, which is generally two weeks after the student has completed the four core courses.

Policy On Student Progress

Students are expected to make good progress toward completion of a degree. The department defines good progress as the timely completion of core courses, passage of the qualifying examination, formation of a thesis/dissertation committee, acceptance of a prospectus, completion of required and elective courses, research tools requirement (for Ph.D. only), fulfillment of the residency requirement, completion of thesis/dissertation units, acceptance of the thesis/dissertation, and passage of the thesis/dissertation defense and comprehensive examination. A checklist for timely progress is provided in Appendix II. This form is to be completed by the student and copies should be kept in the student's folder and by the student and their advisor. Student progress is reviewed annually at a meeting of the DMS faculty in the spring semester and students will receive written notice if they do not complete any of the above events when expected. The notice is intended as a flag to students whose progress is not on schedule. Repeated failure to complete requirements often results in student enrollment beyond the expected maximum time for completion of a degree as defined in this department. In general, full-time students are expected to complete a Master of Science degree in three years or less, a Ph.D. from a master degree in five years or less, and a Ph.D. from a bachelor's degree in six years or less. For part-time students, there may be an additional two to three years required to complete the program. Part time students especially should be aware of the university time limits discussed below.

Students who repeatedly fail to make good progress are subject to loss of privileges upon review by the faculty. Privileges include office and desk space, laboratory space, laboratory supplies and equipment, field equipment, and research and teaching assistantships.

Part-time and full-time students who do not use departmental resources are subject to time limits as stated by the Office of Graduate Studies. The Office of Graduate Studies requires that both part-time and full-time students complete a master's degree within six calendar years from the date of initial enrollment in a graduate program. The Director of the Office of Graduate Studies can be petitioned if more than six years is needed to complete requirements for a master's degree. The Office of Graduate Studies requires that both part-time and full-time students enrolled in a Ph.D. program complete course work and take their comprehensive examination within a period of six years after admission to advanced graduate standing. There is no time limit for completion of the dissertation, but the research must be timely according to the judgment of the thesis/dissertation committee.

Student Petitions for Exemption from Required Courses

- 1) A petition describing the student's reasons for requesting the exemption must be given to the department chair along with any pertinent documentation such as an official transcript and a course syllabus from another university. The student must also discuss the request with the DMS faculty member currently responsible for the particular required course.
- 2) Petitions will be approved by a vote of the DMS faculty **and** with the **consent of the instructor** of the required course.
- 3) Exemption of a student from a required course does not exempt that student from knowledge of the course's subject matter during the qualifying examination or other academic evaluations.
- 4) No credit hours are given with the exemption and exemption does not change the total number of credit hours a student must complete for graduation (Exception: previously approved transfer credit hours).

DMS Policy On Student Assistantships

1. Definitions. Graduate assistants provide support for teaching activities, research, and departmental administration. In general, teaching assistants (TA's) provide support for

teaching and other departmental activities; research assistants (RA's) provide support for faculty research. Decisions on support are usually made in April for the following academic year.

2. Eligibility. Assistantships are awarded, in accordance with USM policy, only to full-time students in good standing who are making timely progress towards a degree. Award of assistantships depends on these conditions as well as the availability of funds. With the approval of the faculty and the Director of Graduate Studies, a conditional student may be eligible to be an RA.

3. Student Responsibilities. Students who accept an assistantship are obligated to perform 20 hours of work per week for the department (TA's) or the sponsoring faculty member (RA's). Failure to perform this obligation or failure to remain a student in good standing can result in termination of an assistantship.

4. Academic Year Support. Academic year assistantships cover the nine-month period from mid-August through mid-May. Graduate assistants are obligated to be available during the same time periods that faculty are available. As of AY 08/09, the assistantship levels will be: \$1,700/mo. for beginning Masters students, \$1,750/mo. for Masters students with approved thesis prospectus and beginning Ph.D. students, and \$1,800/mo. for Ph.D. students who have advanced to candidacy. These assistantship levels are adjusted periodically. Academic year support may come from departmental sources (TA's) or from a faculty member's grant funds (RA's). To maintain an assistantship a student must maintain an average GPA of B or better (3.0 or better) each semester. General tuition and the non-resident fee are waived for graduate assistantship holders. To qualify for this waiver, students on assistantships must be registered for courses totaling twelve (12) hours each semester (nine hours during summer term). Courses taken as audit do not count toward these hours. For the latest information on tuition and fees, go to <http://www.usm.edu/bizserv/generaltuition.html>.

5. Summer Support. The summer is the three-month period from June through August. During the summer, assistantship levels are normally at the same monthly rates as during the academic year. Most summer support comes from faculty member's grant funds. Thus, students supported during the academic year on a teaching assistantship will need to inquire of their advisors as to the availability of summer funds. Supported students will also receive a summer tuition waiver. Students who have received a tuition waiver during the spring semester can receive a summer tuition waiver regardless of their summer financing status.

6. Time Limits. As noted above, continuance of assistantships depends on good progress towards completion of a degree (as well as availability of funds). Therefore, full-time M.S. students will not be eligible for further support **after their third year** and full-time Ph.D. students will not be eligible **after their sixth year**. Under extenuating circumstances, a student may, with the support of the student's advisor and committee, petition to be allowed to receive additional support beyond these limits. Such a request requires the approval of the department chair and a majority vote of the DMS faculty in support of the request.

7. Outside Support. Although DMS endeavors to provide funding for as many qualified students as possible, the total available support is limited. Students are therefore encouraged to work with their advisors to seek external funding such as scholarships, fellowships, and grants. Faculty members and the Office of Research & Sponsored Programs can provide information about funding sources.

8. Outside Employment. Assistantships are designed to allow students to pursue their studies and research full-time. If a student engages in outside employment it is likely to interfere with his/her good progress. Therefore it is required that students discuss outside employment with their advisors prior to accepting any outside position.

FACULTY IN THE DEPARTMENT OF MARINE SCIENCE

VERNON L. ASPER, Ph.D., M.I.T./Woods Hole Oceanographic Institution, 1986. Professor. Research interests: production, distribution and fate of large particles, sediment traps; deep-sea camera systems.

CHARLOTTE A. BRUNNER, Ph.D., University of Rhode Island, 1978. Associate Professor. Research interests: paleoceanography, taphonomy, biostratigraphy and global climate change.

JERALD W. CARUTHERS, Ph.D. Texas A&M, 1968. Associate Professor. Underwater acoustics, bottom and surface scattering and propagation in the complex shallow-water environment. Naval Research Laboratory.

DAVID W. DODD, Ph.D., University of Southern Mississippi, 2007. Assistant Professor, Hydrographic Science. Research interests: extending the range of Real-Time Kinematic GPS for use in offshore vertical positioning.

LAODONG GUO, Ph.D. Texas A&M University. 1995. Associate Professor. Research interests: Biogeochemical cycling, aquatic colloids, isotope geochemistry, interactions at land/ocean, particle/water, and biota/water interfaces, climate and environmental changes.

STEPHEN D. HOWDEN, Ph.D., University of Rhode Island, 1996. Assistant Professor. Research interests: remote sensing of the ocean and atmosphere; general ocean circulation.

VLADIMIR M. KAMENKOVICH, Ph.D., Doctor of Physical-Mathematical Sciences, P. P. Shirshov Institute of Oceanology, Russian Academy of Sciences, Moscow, Russia, 1969. Professor. Research interests: general ocean circulation; mesoscale eddies; coastal currents.

STEVEN E. LOHRENZ, Ph.D., M.I.T./Woods Hole Oceanographic Institution, 1985. Professor. Research interests: microbial dynamics, comparative studies of phytoplankton and bacteria, physical-biological interactions.

SCOTT P. MILORY, Ph.D., University of South Florida, 2007. Assistant Professor. Research interests: Biological Oceanography; coupled biophysical models; computational biology; marine phytoplankton ecology.

DMITRI NECHAEV, Ph.D., Shirshov Institute of Oceanology, Russian Academy of Sciences, Moscow, 1989. Assistant Professor. Research interests: physical oceanography; data assimilation into numerical ocean models, large-scale ocean circulation and coastal dynamics.

KAREN ORCUTT, Ph.D., University of Wales, Swansea, 1999. Assistant Professor. Research interests: nitrogen fixation, iron acquisition by phytoplankton, molecular ecology of phytoplankton.

DONALD G. REDALJE, Ph.D., University of Hawaii, 1980. Professor. Research interests: phytoplankton physiological ecology and biochemistry, mass culture of algae.

ALAN M. SHILLER, Ph.D., Scripps Institution of Oceanography, 1982. Professor. Research interests: trace element geochemistry, carbon dioxide system, estuarine geochemistry.

JERRY WIGGERT, Ph.D., University of Southern California, 1995. Assistant/Associate Professor. Research interests: interplay between the pelagic ecosystem and oceanic biogeochemistry and their response to variability in climate (both natural and anthropogenic).

KEVIN M. YEAGER, Ph.D., Texas A&M University. 2002. Assistant Professor. Research interests: Sedimentary processes, terrestrial and aquatic contaminants, roles of science in public policy, application and development of radiochemical and geochemical methods in geology, geomorphology, limnology, and marine sciences.

ASSOCIATE GRADUATE FACULTY

Consult the department website for a current listing of Associate Graduate Faculty.

APPENDIX I – Additional Program Requirements

Qualifying Examination

This exam takes place upon completion of the four core courses. The purpose of the exam is to evaluate the student's ability to proceed with the degree program and to provide the student with advice and instructions in that regard. The student is responsible for the material covered in the core courses with emphasis on the student research interests. The exam can also cover the student's previous education and experience. The exam is primarily concept-oriented and meant to determine the student's ability to integrate ideas and correlate facts. It lasts about 2.5 hours and must be passed with the agreement of all four committee members. If only three out of four

committee members agree, some conditions may be imposed such as additional readings or reports due to the committee. The exam may be repeated once and this second exam may be written. The student should consult their advisor, their other interim committee members, core course instructors, as well as graduate students who have already taken the exam for more information. The Student Oceanographic Society maintains a file of Qualifying Exam questions.

Note that there are somewhat greater expectations of potential Ph.D. students than M.S. students in the Qualifying Exam. In general, potential Ph.D. students will be asked to complete a Master's degree first, though exceptional performance can result in this requirement being waived. If the student has a master's degree from this department, the master's comprehensive examination may supplant the Ph.D. qualifying examination. The Registrar's Office and the Office of Graduate Studies must be notified by the interim advisor and/or the department chair of the results of the qualifying examination by the completion of a form "RESULTS OF COMPREHENSIVE AND/OR QUALIFYING EXAMS".

Thesis/Dissertation Advisor and Committee

At some time during the first year, the student should enter into an agreement with a faculty member to serve as the student's thesis advisor. An advisory committee should be chosen by the beginning of the second year in residence or upon completion of the qualifying oral exam. For Master's students, the thesis committee must consist of at least three faculty members, one of whom may be an associate graduate faculty member. The Office of Graduate Studies must be notified by the committee chair and department chair of the student's committee members by students having a form "USM GRADUATE COMMITTEE REQUEST FORM" completed and signed by all committee members and the department chair.

For Ph.D. students, the student and major advisor will choose a dissertation committee which will consist of the major advisor and at least four (4) additional members. The committee will have a minimum of one (1) and a maximum of two (2) non-DMS regular or adjunct faculty. A non-faculty member may serve as co-chair with the graduate dean's approval. This committee is recommended by the department chair and appointed by the graduate dean. All members of the committee must be approved at the appropriate responsibility and level of authority by the Graduate Council. Non-USM members with the appropriate training and experience must be approved at the Doctoral Committee level by the Graduate Council. The dissertation committee and the student will plan the remainder of the student's course work, including the tasks to fulfill the language requirement, before the student has completed 34 hours course

work. The major advisor must approve the student's course work each semester, planning sheets will be distributed to the student and the entire dissertation committee.

Advancement to Candidacy: Ph.D. Students Only

Advancement to candidacy only occurs upon completion of all the requirements for the degree except the dissertation. This includes the Research Tools requirement, approval of prospectus (see later section), and comprehensive exam. Notification of satisfaction of the Research Tools requirement (see later section) and acceptance of the research prospectus by the dissertation committee need to be filed with the Office of Graduate Studies prior to advancement to candidacy. Two copies of the Application for Candidacy must be filed by the student with the Office of Graduate Studies and one copy filed with the major advisor at least one semester prior to graduation. The Office of Graduate Studies must be notified by the committee chair and the department chair of a student's admission to candidacy by a form "RESULTS OF COMPREHENSIVE AND/OR QUALIFYING EXAMS FORM" completed and signed by all committee members and department chair (please note this form is used for admission to candidacy as well as reporting qualifying and comprehensive exams results).

Thesis/Dissertation Prospectus

A formal thesis prospectus is required and must be submitted to and approved by the thesis committee as soon as possible after research goals have been established. The student should consult with your faculty advisor for information on form and content of the prospectus. Several drafts may be necessary. Generally, your advisor will base grading for Directed Research credit hours on good progress towards your prospectus. The body of the prospectus (excluding cover and title pages and references) should be limited to 15 pages in length. The prospectus should include the following sections:

- a) DMS Prospectus Cover/Signature Sheet
- b) introduction briefly stating the nature of your proposed thesis work,
- c) background section documenting the relevant literature and highlighting the study area to which your research will contribute new information,
- d) brief statement of objectives and hypotheses,
- e) detailed experimental plan,
- f) timetable for completion of your research and writing of the thesis,

g) references.

Your advisor and committee may suggest other modifications. The completed prospectus represents an agreement between you and your committee as to what will constitute your thesis/dissertation. If you change aspects of your experimental plan, be sure to do so with the approval of your advisor and committee. For master's students, the Office of Graduate Studies must be notified in writing by the student's committee chair and the department chair when the research prospectus has been approved by submitting a form 'THESIS PROPOSAL OR PROSPECTUS APPROVAL FORM.'

For Ph.D. students, the Office of Graduate Studies must be notified in writing by the student's committee chair and the department chair when the research prospectus has been approved by submitting a form 'DISSERTATION PROPOSAL AND PROSPECTUS APPROVAL FORM.'

Comprehensive Exam

A comprehensive exam is required for all students. This exam is administered by the thesis/dissertation committee and is a rigorous evaluation of the student's knowledge and abilities. For Master's students this is an oral exam given immediately following the public presentation of the thesis. For Ph.D. students, the exam may have oral and written parts and is administered following completion of all formal course work. For Master's students, the exam is the final requirement for the degree and will tend to focus on the thesis work. For Ph.D. students, the exam is an important step in becoming a degree candidate. As such, it will focus on the student's intellectual ability to pursue the dissertation topic. A Ph.D. student should expect to complete formal course work by the end of the third year and to take the comprehensive exam soon thereafter. A student failing to pass the comprehensive exam may repeat the examination only once. This examination must be completed within six (6) years of a student being admitted to the program. The Registrar's Office and the Office of Graduate Studies must be notified by the committee chair and the department chair of the results of the comprehensive examination by the completion of a form "RESULTS OF COMPREHENSIVE AND/OR QUALIFYING EXAMS".

Department of Marine Science Research Tools Requirement (Ph.D. Students)

The Research Tools Requirement for Marine Science doctoral students should be tailored to the specific tools and skills needed by the student for his/her dissertation research and/or future career, and should be significant in nature. The mechanism for determining the nature of the Tools Requirement will involve both the student and the

Dissertation Committee. The doctoral student and the dissertation advisor will propose a mechanism for meeting the Research Tools Requirement to the full Dissertation Advisory Committee for their approval. The approved Research Tools proposal will then be submitted to the Department Chair for approval. The Graduate Dean will be notified of the approval of this mechanism and again after the requirement has been satisfied. Guidelines for the Research Tools Proposal are as follows:

1. Completion of 9 semester hours or the equivalent of formal course work or other training that provide the student with tools or skills that would not ordinarily have been part of the student's graduate curriculum. These hours may be for undergraduate (if appropriate) or graduate courses and will not count toward the minimum degree requirements. Possible courses might include, but would not be limited to, those dealing with scientific ethics, teaching or communication skills for science, remote sensing, software applications, statistics, computer sciences, mathematics, and/or numerical modeling. In some cases, a foreign language may be appropriate. Other training might include short courses or workshops run by commercial vendors, government agencies, USM, or other universities or academic/research institutions. Such training exercises would not be taken for credit, but would be allotted an equivalent amount of semester hour credit, as determined by the student and their advisory committee, toward the 9 hour Research Tools requirement. The student's advisory committee may require the student to demonstrate learned skills or to submit a written report summarizing the instruction received in any short or non-credit course with examples of the applied use of learned skills.
2. Students could take some number of semester hours of MAR 791 (Directed Research) to learn material from his/her advisor, another committee member, or another DMS or USM faculty member that would be specific to that individual. This course would provide the student with a specific set of Research Tools that could not be obtained easily through other mechanisms.
3. A student may propose to their advisor that some credit be allotted for prior work-related experience or previous course work that is directly relevant to the student's dissertation research or career goals. In this case, the student would submit a written proposal to the advisor requesting that some portion of the 9-hour Research Tools requirement be met based on previous work-related experience or course work. As part of this proposal, the student must provide evidence that the experience and

course work is relevant to his/her research or career goals, documentation that he/she received a grade of B (3.0 quality points per credit hour) or better in all suggested courses, and/or documentation as to the student's proficiency in the skills or tools acquired through the previous work-related experience.

The Department of Marine Science feels that it would be most beneficial to Marine Science doctoral students for the Research Tools Requirement to be as broadly-based and flexible as possible and yet provide significant learning opportunities to make our doctoral program graduates better able to succeed in their subsequent endeavors.

Ph.D. Dissertation

Each Ph.D. student will write a scholarly dissertation based on his/her original research. The research topic must be approved by the student's dissertation committee. Students should also consult the Office of Graduate Studies for guidelines for preparing theses and dissertations (<http://www.usm.edu/graduatestudies/reader.php>).

A final, oral examination on the dissertation will take place at least four (4) weeks prior to the end of the semester that the student plans to graduate and will consist of two parts. The first part is a seminar on the dissertation research that will be open to the public; the second part will follow immediately and will be a closed, oral examination on the dissertation. At least two (2) weeks prior to the examination the student will present an acceptable copy of the dissertation to the members of the dissertation committee. The entire examination is open to the graduate faculty and is conducted by the dissertation committee and any member of the faculty designated by the graduate dean. The Office of Graduate Studies must be notified in writing by the student's committee chair and the department chair the results of the comprehensive exam and the oral defense of dissertation by submitting two (2) forms: "RESULTS OF ORAL DEFENSE OF DISSERTATION" and the "RESULTS OF COMPREHENSIVE AND/OR QUALIFYING EXAMS FORM."

Application for Degree

The student must file two copies of the Application for Degree, properly stamped by the Business Office, with the Office of Graduate Studies preceding the semester that the student plans to graduate. This application is filed at the same time or after the Application for Candidacy.

When completed, the student's file in the Office of Graduate Studies will contain forms submitted from the major advisor and/or departmental chair verifying the successful

completion of the qualifying examination, appointing the dissertation committee, approving the dissertation prospectus, verifying the successful completion of the comprehensive examination and the final dissertation examination, statements of language proficiency, the Application for Candidacy and the Application for degree.

Thesis/Dissertation Defense

The student must present an acceptable copy of her/his thesis to the thesis committee at least 30 days prior to a public presentation and defense of the thesis. The defense will consist of an oral presentation of the thesis research followed by a period of questions and discussion open to the public.

APPENDIX II – Student Progress Checklist

STUDENT PROGRESS TIME LINE Master of Science Degree, Full-Time Students

Activity	Target Date* (summer semester not counted)	Date Completed	Student Initials	Advisor Initials	Chair Initials
Core Courses	by end of 2nd semester				
Qualifying Exam	by 2 wks after end of 2nd semester				
Thesis Advisor/Committee	by beginning of 3rd semester				
Thesis Committee Meeting	by end of 3rd semester				
Thesis Prospectus	by beginning of 4th semester				
Thesis Committee Meeting	by end of 4th semester				
Courses Completed	by end of 4th semester				
Thesis Committee Meeting	by end of 4th semester				
Application for Degree	early in 6th semester				
Acceptance of Thesis	by end of 6th semester				
Thesis Defense	by end of 6th semester				
Comprehensive Exam	by end of 6th semester				

**Review Graduate Bulletin published the year you were admitted to determine the exact dates for all deadlines.*

STUDENT PROGRESS TIME LINE
Master of Science Degree, Part-Time Students

Activity	Target Date*	Date Completed	Student Initials	Advisor Initials	Chair Initials
Core Courses	by end of 4th semester				
Qualifying Exam	by 2 wks after end of 4th semester				
Thesis Advisor/Committee	by beginning of 6th semester				
Thesis Committee Meeting	by end of 6th semester				
Thesis Prospectus	by beginning of 6th semester				
Thesis Committee Meeting	by end of 6th semester				
Courses Completed	by end of 8th semester				
Thesis Committee Meeting	by end of 8th semester				
Application for Degree	early in 12th semester				
Acceptance of Thesis	by end of 12th semester				
Thesis Defense	by end of 12th semester				
Comprehensive Exam	by end of 12th semester				

**Review Graduate Bulletin published the year you were admitted to determine the exact dates for all deadlines.*

STUDENT PROGRESS TIME LINE
Doctor of Philosophy Degree, Full-Time Students

Activity	Target Date*	Date Completed	Student Initials	Advisor Initials	Chair Initials
Core Courses	by end of 2nd semester				
Qualifying Exam	by 2 wks after end of 2nd semester				
Dissertation Advisor/Committee	by beginning of 3rd semester				
Program of Study	by beginning of 3rd semester				
Dissertation Committee Meeting	by end of 4th semester				
Dissertation Prospectus	by beginning of 5th semester				
Dissertation Committee Meeting	by end of 6th semester				
Courses Completed	by end of 6th semester				
Dissertation Committee Meeting	by end of 7th semester				
Comprehensive Exam	by end of 7th semester				
Research Tools Requirement	by end of 7th semester				
Application for Degree	early in 8th semester				
Acceptance of Dissertation	by end of 8th semester				
Dissertation Defense	by end of 8th semester				

**Review Graduate Bulletin published the year you were admitted to determine the exact dates for all deadlines.*

STUDENT PROGRESS TIME LINE
Doctor of Philosophy Degree, Part-Time Students

Activity	Target Date*	Date Completed	Student Initials	Advisor Initials	Chair Initials
Core Courses	by end of 4th semester				
Qualifying Exam	by 2 wks after end of 4th semester				
Dissertation Advisor/Committee	by beginning of 5th semester				
Program of Study	by beginning of 5th semester				
Dissertation Committee Meeting	by end of 5th semester				
Dissertation Prospectus	by end of 6th semester				
Courses Completed	by end of 8th semester				
Dissertation Committee Meeting	by end of 8th semester				
Comprehensive Exam	by end of 8th semester				
Research Tools Requirement	by end of 8th semester				
Dissertation Committee Meeting	by end of 10th semester				
Application for Degree	early in 11th semester				
Acceptance of Dissertation	by end of 12th semester				
Dissertation Defense	by end of 12th semester				

**Review Graduate Bulletin published the year you were admitted to determine the exact dates for all deadlines.*