



**Environmental and Ocean Sciences M.S. Program**  
**University of San Diego**  
**Student Handbook**

**2019-2020**

## Welcome from the Program Director

Welcome to the Environmental and Ocean Sciences M.S. program at the University of San Diego! This newly revised program is intended to provide a combination of coursework and independent research, culminating in a written thesis and a Master of Science degree in Environmental and Ocean Sciences, with either a Marine Science or an Environmental Science track. Students in this program work closely with a faculty advisor to design a research project, collect and analyze data, and communicate the results in a way that facilitates scientific exchange. After completing their degrees, our alumni have gone on to a wide range of careers in marine and environmental science and education.

The M.S. program utilizes the excellent facilities at the University of San Diego's Shiley Center for Science and Technology, and students are able to experience the rich diversity of ecosystems available in the San Diego area. Students also may have the opportunity to work on collaborative research projects at nearby institutions, such as the Southwest Fisheries Science Center (National Marine Fisheries, NOAA), Hubbs-SeaWorld Research Institute, Leon R. Hubbard Hatchery, and Tijuana River National Estuarine Research Reserve.

San Diego also is home to a vibrant community of marine and environmental scientists. M.S. students are encouraged to interact with researchers from other institutions, and many have an outside member on their thesis committee. These interactions enrich the graduate experience and strengthen the quality of student scholarship.

USD faculty currently are involved in research in ecology, environmental geochemistry, climatology, paleoclimatology, hydrology, oceanography, marine biology, locomotion and fluid dynamics, fluvial geomorphology, physiology, and population genetics. Affiliated faculty work in the areas of bioacoustics, fisheries, aquaculture, molecular genetics, hydrogeology, ecology, marine pollution and physiology. Whether in the life sciences or physical sciences, local research opportunities abound: from the coasts and estuaries of San Diego County to offshore and island environments. The deserts of southern California, which include inland water bodies and former ocean basins, offer additional research possibilities. In some instances, research may focus on more distant areas. More information about faculty interests, graduate student thesis titles, and facilities is available through our website (<http://www.sandiego.edu/cas/ms-environmental-ocean-sciences/>).

This handbook was developed by faculty and both current and former USD students. It is designed to provide information about the program and suggestions for success during your time at USD.

The Environmental and Ocean Sciences graduate faculty and I are here to help you succeed. If I can be of assistance to you in any way, please don't hesitate to contact me.

Drew Talley, Ph.D., Director  
Environmental and Ocean Sciences Graduate Program

## **Mission**

1. To provide students with a solid foundation of environmental and ocean science coursework and independent research experience, including exploration of the scholarly context for their research; experimental design; ethical execution of research; and analysis, critique and interpretation of the results.
2. To encourage students to consider multiple, diverse viewpoints within their field and integrate information across content areas, as appropriate.
3. To furnish students with training in the ethical and effective communication of scientific information to both scientific and non-scientific audiences.

## **Program Outcomes**

Students who complete a M.S. in Environmental and Ocean Sciences at the University of San Diego should

1. display mastery and breadth of knowledge of the fundamental principles of Environmental and Ocean Science.
2. be able to place their research in an appropriate scholarly context and consider multiple, diverse viewpoints within their field.
3. be able to formulate and test scientific hypotheses by conducting independent research and analyzing, critiquing and interpreting scientific data, including the integration of knowledge and practice across content areas, as appropriate.
4. be able to communicate scientific information ethically and effectively.

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## **Program History and Description**

The M.S. program in Marine Science began to admit students in 1993, and the program has broadened as the number of graduate faculty has increased. Today, faculty perform research in many areas of marine and environmental science, providing graduate students with a range of opportunities to conduct research as part of their M.S. degree requirements. In September 2017, the Marine Science M.S. program was replaced by a new M.S. program in Environmental and Ocean Sciences, to reflect the diverse research expertise of our faculty and expand the scope of the program to include environmental science more broadly. The program includes two groups of faculty: USD graduate faculty and affiliated faculty who work at other institutions, most in the San Diego area, and serve on graduate student committees. A list of the Environmental and Ocean Sciences graduate faculty and descriptions of their research interests can be found on the program web site (<http://www.sandiego.edu/cas/ms-environmental-ocean-sciences/faculty-and-staff/>).

The Environmental and Ocean Sciences M.S. (EOSMS) program is housed within the Environmental and Ocean Sciences Department in USD's College of Arts and Sciences. Undergraduate students majoring in Environmental and Ocean Sciences receive training in major areas of Oceanography and Earth Systems Science as well as human interactions with the natural world. Students in the Environmental Studies pathway take courses in both science and non-science subjects, with the goal of training students to be capable in both the natural and social sciences. EOSMS students often interact with USD undergraduates, many of whom work in the same research labs as the graduate students.

The Environmental and Ocean Sciences graduate program has close connections with other research institutions in the San Diego area. One of these is the Hubbs-SeaWorld Research Institute (HSWRI), which includes a research facility near Mission Bay and the Leon R. Hubbard Hatchery in Carlsbad. HSWRI researchers who mentor EOSMS students conduct research in marine mammal bioacoustics and various aspects of aquaculture and species that are aquaculture subjects.

Faculty and students in the graduate program also work closely with researchers at the Southwest Fisheries Science Center (SWFSC, a regional center of the National Marine Fisheries Service, NOAA) and the Inter-American Tropical Tuna Commission (IATTC). Researchers at SWFSC and the IATTC conduct research in a variety of areas, including the population genetics of marine mammals; ecology of cetaceans and seabirds; relationships between oceanographic conditions and populations of pelagic tunas and tuna-like species; ecosystem-based approaches to fisheries management; and the spatial and genetic structures of fish populations.

The Tijuana River National Estuarine Research Reserve (TR-NERR) provides additional research opportunities for EOSMS students. The reserve offers a setting for the study of estuarine communities, including salt marshes and coastal lagoons. Research at the reserve includes adaptive management of the estuaries various ecosystems as well as the ecology and management of non-indigenous species.

Researchers at HSWRI, SWFSC, the IATTC and TR-NERR often supervise EOSMS students whose research interests are consistent with their work. Many of these researchers are affiliated faculty members within the EOSMS Program. Students who are interested in working with researchers at these facilities should consult the faculty research interests on the program web site ([www.sandiego.edu/cas/ms-environmental-ocean-sciences/faculty-and-staff/#group-11](http://www.sandiego.edu/cas/ms-environmental-ocean-sciences/faculty-and-staff/#group-11)).

A list of USD Environmental and Ocean Sciences graduate faculty and affiliated faculty is included below.

#### **USD Environmental and Ocean Sciences Graduate Faculty**

Michel A. Boudrias, Ph.D., Locomotion, benthic ecology  
Eric Cathcart, M.S., Environmental geology  
Hugh I. Ellis, Ph.D., Avian physiological ecology, waterbirds, seabirds  
Sarah C. Gray, Ph.D., Paleoclimatology, sedimentology  
Ronald S. Kaufmann, Ph.D., Pelagic and benthic ecology  
Mary Sue Lowery, Ph.D., Fish biochemistry and muscle development  
Geoffrey E. Morse, Ph.D., Ecology and evolution of insects  
Andrew P. Nosal, Ph.D., Ecology and behavior of marine fishes  
Bethany O'Shea, Ph.D., Environmental geochemistry  
Jennifer C. Prairie, Ph.D., Biophysical interactions in aquatic systems  
Nathalie B. Reyns, Ph.D., Biophysical dispersal of larvae, fisheries ecology  
Steven P. Searcy, Ph.D., Early life history of fishes  
Drew M. Talley, Ph.D., Coastal ecology, habitat connectivity  
Suzanne C. Walther, Ph.D., Fluvial geomorphology  
Zhi-Yong Yin, Ph.D., Hydroclimatology, GIS and remote sensing

#### **Affiliated Environmental and Ocean Sciences Graduate Faculty**

Frederick I. Archer, Ph.D., Southwest Fisheries Science Center (NMFS, NOAA), Population genetics and delphinid fisheries  
Lisa T. Ballance, Ph.D., Marine Mammal Institute, Oregon State University, Cetacean and seabird ecology  
Ann E. Bowles, Ph.D., Hubbs-SeaWorld Research Institute, Bioacoustics  
Matthew T. Craig, Ph.D., Southwest Fisheries Science Center (NMFS, NOAA), Evolution, biology, systematics and ecology of marine fishes  
Jeffrey A. Crooks, Ph.D., Tijuana River National Estuarine Research Reserve, Ecology of coastal ecosystems and non-indigenous species  
Mark A. Drawbridge, M.S., Hubbs-SeaWorld Research Institute, Hatcheries and aquaculture  
Michael G. Hinton, Ph.D., Inter-American Tropical Tuna Commission, Pelagic ecology, population ecology, statistics

John R. Hyde, Ph.D., Southwest Fisheries Science Center (NMFS, NOAA), Genetics, population biology and ecology of marine fishes

Thomas G. Kretzschmar, Ph.D., Centro de Investigacion Cientificas y de Enseñanza Superior de Ensenada (CICESE), Mexico, Hydrogeology

Christian S. Reiss, Ph.D., Southwest Fisheries Science Center (NMFS, NOAA), Fisheries oceanography and ecology

Ignacio Rivera-Duarte, Ph.D., SPAWAR Systems Center Pacific, Environmental geochemistry of trace metals

Michael D. Scott, Ph.D., Inter-American Tropical Tuna Commission, Ecology and behavior of dolphins affected by tuna purse-seine fishery

Brent S. Stewart, Ph.D., J.D., Hubbs-SeaWorld Research Institute, Ecology of seabirds, penguins, marine mammals and whale sharks

Kevin R. Stuart, M.S., Hubbs-SeaWorld Research Institute, Hatcheries and aquaculture

Theresa S. Talley, Ph.D., California Sea Grant, Ecology of coastal ecosystems

Andrew R. Thompson, Ph.D., Southwest Fisheries Science Center (NMFS, NOAA), Ecology of larval fishes and invertebrates

Russell D. Vetter, Ph.D., Southwest Fisheries Science Center (NMFS, NOAA), Ecology, evolution and molecular biology of fishes

Nicholas C. Wegner, Ph.D., Southwest Fisheries Science Center (NMFS, NOAA), Physiology of fishes

## Environmental and Ocean Sciences M.S. Program

### A. Admission

#### Applying to the Graduate Program

**The priority application deadline for admission to the USD Environmental and Ocean Sciences M.S. Program is January 15<sup>th</sup>.** Applications received after this date will be considered, but evaluation of applications typically begins in early February, and university financial aid can not be guaranteed to applicants whose materials are received after April 1<sup>st</sup>.

Students who are admitted to the EOSMS Program typically have a bachelor's degree in one of the sciences. All applicants should have fulfilled the program admission requirements:

- One semester of life science for science majors, with laboratory
- One year of chemistry with laboratory
- One semester of physics for science majors, with laboratory
- One semester of calculus
- One semester of statistics
- One semester of earth science or atmospheric science, with laboratory (Environmental Science track)
- One semester of earth science for science majors, with laboratory, is strongly recommended

All of these courses should be designed for science majors. Applicants should have a minimum undergraduate grade point average of 3.0 on a 4.0 scale and Graduate Record Examination (GRE) scores that reflect the potential for success in graduate studies. To be considered for admission to the Environmental and Ocean Sciences M.S. program, the GRE general test is required.

In some cases, an applicant's undergraduate degree program did not include one or more of the courses required for admission. It is strongly recommended that those courses be completed prior to entering the program (i.e., by the end of the summer before a student's first semester at USD).

All applicants should solicit letters of recommendation from three professors who are familiar with the applicant's scholarly work or from professional supervisors who have had experience in a graduate program and can provide information regarding the applicant's potential for success as a graduate student. Recommendations from coaches, family friends, and other people who are familiar with the applicant may be helpful but should not be submitted in place of the three academic recommendations. Review of applications that do not include three academic reference letters may be delayed.

An important element of an application is a personal statement that addresses the applicant's specific research interests and their compatibility with the expertise of particular Environmental and Ocean Sciences graduate faculty. **It is strongly recommended that potential applicants contact one or more of the graduate faculty about conducting research under their supervision before submitting an application.** Before contacting a potential faculty mentor, it



is very useful for students to familiarize themselves with the faculty member's research by reading about their research interests on the graduate program web site at

[www.sandiego.edu/cas/ms-environmental-ocean-sciences/faculty-and-staff/](http://www.sandiego.edu/cas/ms-environmental-ocean-sciences/faculty-and-staff/)

It also is a good practice to read some of the faculty member's recent publications to acquire a deeper understanding of their research and how your interests may fit with theirs.

Information about current graduate students and their research as well as former graduate students and the titles of their completed theses may be helpful and can be found on the graduate program web site at

[www.sandiego.edu/cas/ms-environmental-ocean-sciences/prospective-students/grad-student-profiles-ms-marine-science.php](http://www.sandiego.edu/cas/ms-environmental-ocean-sciences/prospective-students/grad-student-profiles-ms-marine-science.php)

and

[www.sandiego.edu/cas/ms-environmental-ocean-sciences/program/completed-thesis.php](http://www.sandiego.edu/cas/ms-environmental-ocean-sciences/program/completed-thesis.php)

Additional application information can be found on the program web site at

[www.sandiego.edu/cas/ms-environmental-ocean-sciences/prospective-students/how-to-apply.php](http://www.sandiego.edu/cas/ms-environmental-ocean-sciences/prospective-students/how-to-apply.php)

**All applicants should fill out a Free Application for Federal Student Aid (FAFSA) before submitting an application. The FAFSA priority deadline for graduate students is April 1<sup>st</sup>.** Note that this date is more than two months after the priority deadline for applying to the EOSMS program (see above).

Complete applications are reviewed by a faculty admissions committee, and students whose applications are complete by the January 15<sup>th</sup> priority deadline typically are notified of the admissions decision by the end of March. Applications are accepted after the priority deadline, but admissions decisions may be delayed so that the admissions committee has sufficient time to review each application. Within 2-3 days after submitting an application, applicants should receive an e-mail that provides a user name and password that will allow the applicant to use the USD student portal, MySanDiego.edu. Applicants should check the portal after submitting all materials to make sure that their application is complete. At times, a missing transcript, letter of recommendation or GRE score may delay review of an application. **It is the responsibility of the applicant to make sure that all of their materials have been received by USD and that their application is complete.**

Financial aid information also should be available through the portal, after an applicant's financial aid materials have been received. Questions about the status of a financial aid application should be addressed to the Office of Financial Aid ([usdofas@sandiego.edu](mailto:usdofas@sandiego.edu)).

### Admitted Students

After being admitted, new students can accept or decline their financial aid package through the portal. Students who intend to enter the program should submit their deposit by the date specified on the admission letter and contact the Graduate Program Director about enrolling in classes for their first semester. Once a deposit has been received, students will be able to create a USD e-mail address (all official USD communications will go to this address).

**ID Card:** Prior to the start of classes, new students should get a USD ID card from Campus Card Services (located in UC 127, 619-260-5999). Information on procuring an ID card can be found on the Card Services web site at

[www.sandiego.edu/campuscard/services/university-id-cards.php](http://www.sandiego.edu/campuscard/services/university-id-cards.php)

**Building and Room Access:** Access to graduate student spaces in the Shiley Center for Science and Technology (SCST) requires approval from the department. Contact the Executive Assistant, Soroya Rowley (ST 284, [soroya@sandiego.edu](mailto:soroya@sandiego.edu), x4795) to make sure that your name is on the list of graduate students who are approved for internal and external door access. External door access involves semi-annual requests from the building manager, Keith Macdonald, ST 329, [keithm@sandiego.edu](mailto:keithm@sandiego.edu), x4211, to Public Safety. If you do not have building access or encounter problems accessing rooms within the building, please e-mail Keith, cc to Dr. Talley.

The Shiley Center for Science and Technology contains one space exclusively for Environmental and Ocean Sciences graduate students: the graduate lounge (ST 149). This room includes student mailboxes, computers, a printer, copies of completed M.S. theses and shared work spaces, as well as a small refrigerator, microwave oven, and a table and chairs where graduate students frequently gather. Environmental and Ocean Sciences graduate student ID cards will provide access to this room.

**Parking:** All graduate students are eligible to purchase a parking permit that will provide access to parking spots on campus. Information about acquiring a permit and parking regulations can be found on the USD Parking Services web site ([www.sandiego.edu/parking](http://www.sandiego.edu/parking)). Having a parking permit does not guarantee a space, and parking close to the science building tends to fill up early in the morning. Often, students park in a parking structure on the west or east end of campus and walk to the science building or take a tram that stops within a short distance of the building. Some students also forgo a parking permit and park across Linda Vista Road from campus, then walk up the hill.

**Computing Support:** All graduate students have access to computing support from Instructional Technology Services (x7900; [www.sandiego.edu/its](http://www.sandiego.edu/its)). ITS provides free technical support as well as tutorials and workshops on a variety of topics ([www.sandiego.edu/its/training/](http://www.sandiego.edu/its/training/)).

## **B. Program Characteristics**

### *Being a Graduate Student*

Being a graduate student in the EOSMS Program at USD can be a highly stimulating and rewarding experience. Unlike most undergraduate experiences, being a graduate student involves greater focus within a discipline (vs. taking classes in multiple departments) and a greater emphasis on conceptual learning. Graduate students also are expected to be inquisitive about environmental and ocean science in general, not just the narrow area within which their research takes place. San Diego contains a very active marine science community, and students should take advantage of the many opportunities to interact with both local and visiting scholars.

Environmental and Ocean Sciences graduate students are expected to be actively engaged in the graduate program throughout the year, including periods (January, summer) when graduate classes do not meet. This engagement includes attendance at Environmental and Ocean Sciences seminars, thesis defenses and graduate events as well as participation in undergraduate weekend field trips as volunteers. Not meeting these expectations will be a consideration in the distribution of departmental support to graduate students.

Graduate students are expected to be professional, independent and proactive. Faculty advisors care about a student's progress, but they will not chase after students and force them to do their work. Acquiring a M.S. degree should be a reflection of a student's ability to work independently, think synthetically, and make progress without needing constant supervision. Faculty advisors are here to advise and guide students, not provide step-by-step instructions for successfully completing a graduate program.

### *Curriculum*

The requirements for completion of the Environmental and Ocean Sciences M.S. program are listed in the Graduate Course Catalog ([catalogs.sandiego.edu/graduate/colleges-schools/arts-sciences/marine-science/](http://catalogs.sandiego.edu/graduate/colleges-schools/arts-sciences/marine-science/)). Course Catalogs are updated every year, and students may complete the program requirements in any catalog that is in effect at any time while they are enrolled in the graduate program. Students are required to complete a minimum of 30 units in the Environmental and Ocean Sciences M.S. program.

All Environmental and Ocean Sciences M.S. students are required to take two graduate science courses with labs. Many of the graduate science courses have weekly labs, and most include field trips. Students also take a statistics course and at least one elective or a third graduate science course in a subject of interest. During the first year, all students are enrolled in a two-semester Core Seminar sequence. These two courses introduce students to the EOSMS Program and the resources of the university and affiliated institutions (HSWRI, SWFSC, IATTC, TR-NERR). Core Seminar also includes critical discussion of scientific literature, exercises in the responsible conduct of research and communication of scientific information in both written and oral form, and development of a written thesis proposal. During the Fall semester, students become familiar with relevant scientific literature and develop a thesis question and testable hypotheses. During the Spring, students write their proposals and prepare an oral presentation of their proposed thesis research for presentation to the graduate faculty.

The program curriculum is provided below.

**I. Coursework** (minimum 19 units)

EOSC 500 Core Seminar I (2) – Introduction to program, university, faculty, USD and San Diego resources, independent scientific research, proposal writing

EOSC 501 Core Seminar II (2) – Development of thesis proposal, scientific presentations

Graduate Science Courses, with lab (12)<sup>1</sup>

Graduate Elective or Science Course, with lab (3-4)

Graduate Science Courses (E = Environmental, M = Marine)

EOSC 520 Introduction to Remote Sensing (4) E

EOSC 531 Human Impacts on the Coastal Environment (4) E, M

EOSC 532 Marine Community Ecology (4) M

EOSC 533 Plankton Ecology (4) M

EOSC 550 Geological Oceanography (4) E, M

EOSC 551 Biological Oceanography (4) M

EOSC 552 Marine Geochemistry (4) E, M

EOSC 573 Climatology (4) E, M

EOSC 574/574L History of the Earth and Climate (3/1) E, M

EOSC 585 Environmental Geology (4) E

EOSC 587 Surface Water Hydrology (4) E

EOSC 588 Geomorphology (4) E

Graduate Electives<sup>2</sup>

EOSC 514 Introduction to Maps and Spatial Analysis (4) E

EOSC 515 Geographic Information Systems (4) E

EOSC 561 Invertebrate Zoology (4) M

EOSC 562 Biology of Fishes (4) M

EOSC 565 Marine Mammals (3) M

EOSC 594 Special Topics (3-4)

POLS 529 Law of the Sea (3) M

**II. Research/Thesis** (minimum 10 units)

EOSC 596 Research<sup>3</sup> (5-9)

- Graduate Elective or Science course may replace up to 4 units of Research

EOSC 597 Thesis<sup>3</sup> (0.5-1) – Minimum of 1 unit of EOSC 597 applied toward degree

<sup>1</sup>Students in the Marine Science track must take two graduate science courses with an M designation. Students in the Environmental Science track must take two graduate science courses with an E designation. Electives could be either E or M for students in either track.

<sup>2</sup>A maximum of six undergraduate units taken at the university may be applied to the graduate program, unless a student is enrolled in the combined degree program. Examples include BIOL 301, BIOL 364, BIOL 416, BIOL 477, BIOL 478, POLS 349. This list is not exhaustive; consult the graduate program director. See the current Undergraduate Course Catalog for course

descriptions. No course taken to fulfill an undergraduate deficiency may count toward the required units in the graduate program.

<sup>3</sup>Students may take EOSC 596 or 597 for 0.5 unit after completing all program requirements except the written thesis (typically 29 units).

### **Recommended Program of Study**

#### **First Year**

<u>Semester I (9-10 units)</u>	<u>Semester II (9-10 units)</u>
EOSC 500 (2)	EOSC 501 (2)
Science Course (4)	Science Course (4)
Science Course or Elective (3-4)	Science Course or Elective (3-4)

#### **Second Year**

<u>Semester I (10 units)</u>	<u>Semester II (1 unit)</u>
EOSC 596 (6-7)	EOSC 597 (1)
EOSC 596 or Elective (3-4)	

Note: Students who will not finish by the end of their second summer should take 9-10 units in semester I of the second year and 0.5-1 unit of EOSC 596 in semester II of the second year. These students then should take 0.5-1 unit of EOSC 597 each semester until they finish.

### **Research**

The first step in conducting research as a M.S. student is choosing a research advisor. It is the policy of the EOSMS Program for each applicant to have a provisional advisor before being accepted. Assuming that the student continues to work with their provisional advisor, that person will become the chair of the student's thesis committee. During the student's first year, meeting with their Thesis Chair on a regular basis (at least once every two weeks) is strongly encouraged. Students who do not meet with their Thesis Chair frequently have a more difficult time developing their research projects. The usual result is a slow start on the student's research, resulting in lower grades in Core Seminar and a longer time to complete the program.

Independent graduate research is just that: independent. This does **not** mean that a student should expect the immediate trust and support of the Thesis Chair. However, once the student has identified a focused research question and started to conduct their work, there is an expectation of independence and responsibility. A graduate student should carry out his or her own studies and think critically about the results as he or she progresses. A graduate student should not be a research technician who requires instructions from someone else in order to work. Consulting regularly with the Thesis Chair is important (see above); however, initiative and a certain degree of self-reliance are critical as well.

### **Thesis Committee**

By the end of a student's first summer in the program, a thesis committee should have been constituted. The role of this group is to advise the student as he or she proceeds with research and progresses through the program. A thesis committee must have a minimum of three members, and four-member committees are not uncommon. Committee members need not be

USD faculty, and researchers from a variety of institutions serve on USD graduate student committees. The committee membership should be determined by the Thesis Chair and student together. Thesis Chairs, not students, are responsible for inviting other members to join the committee. A student whose Thesis Chair is not a USD faculty must have an on-campus Thesis Advisor who is a member of the USD Environmental and Ocean Sciences graduate faculty. The Thesis Advisor is different from the Thesis Chair (described above). The Thesis Advisor is responsible for communicating with the Thesis Chair about the student's progress as well as important university and program policies and deadlines.

Once the committee has been formed, a full committee meeting should take place as soon as practical. Prior to that meeting, the student should send all of their committee members the most recent draft of their thesis proposal. The meeting itself is an opportunity for the student to describe their proposed research and for the committee to provide input that should guide the student in the execution of that research. Often, the first meeting is an opportunity for committee members to get to know each other and discuss the student's proposed research for the first time as a group. Students frequently are apprehensive about this first committee meeting yet find themselves enthused, energized and focused afterward. Holding the first full committee meeting before the beginning of a student's second year of a student's time at USD is very important. Students who have not had their first committee meeting by the end of the summer following their first year in the program may not be allowed to enroll in class in the fall of their second year.

### Candidacy

Advancement to candidacy is an important step in the graduate program. Candidacy reflects approval by the thesis committee of a student's proposed research project. Typically, advancement takes place after a thesis committee meeting during the summer or fall following the first year in the program. Following that meeting, the student's Thesis Chair should complete an Advancement to Candidacy form, which is included in this handbook (Appendix 1) and also can be obtained from the Graduate Program Director. That form should include the names of the student and all committee members and should be signed by the committee chair and returned to the Graduate Program Director.

### Time Line for Program

Most students complete the EOSMS program in 3.5 years or less. During the **first year**, students typically take courses; develop their thesis proposal while becoming familiar with the relevant literature; and perform their initial thesis research. The January intersession is an especially important time for carrying out research, since graduate students don't have scheduled classes, and their research supervisors usually aren't teaching. The summer following the first year of classes is another important time for carrying out research, and students are expected to make substantial progress on their thesis projects before the start of the fall semester.

During the **second year** of the EOSMS program, students usually focus on their research, though some also may take an elective class in place of research units. Because the second year typically includes no more than one class, students usually are able to make considerable progress on their thesis research. Many students complete their thesis research by the end of the summer following their second year.

The **third year** is usually when students work on data analysis and the writing and editing of their thesis, with input from their chair and other committee members. The speed of progress during this period is dependent on how complicated the data set and analyses are, how quickly the student produces drafts of their thesis chapters, the quality of the initial drafts, and the time frame for receiving and incorporating comments from the committee members. After they finish collecting their data, most students require 8-12 months to produce a near-final version of their thesis.

Completion of the EOSMS program requires a public thesis defense and submission of a complete, bound, written thesis that has been approved by all of the thesis committee members. Students should submit a near-final thesis for final review by their committee at least one month prior to the thesis defense. This near-final draft should be complete (i.e., no missing sections or substantial work still in progress) and require minimal editing before being approved by the thesis committee. After the thesis defense, the student should be prepared to incorporate comments from their committee in a timely fashion to produce a finished thesis that can be submitted to the university. This editing and formatting typically takes 4-8 weeks, depending on the number and nature of the comments.

#### Registration and Status

At USD, a M.S. student must be registered for nine units per semester to be considered full-time in the graduate program. After a student has completed **all of the program requirements except for the written thesis**, they may enroll for a minimum of 0.5 unit of Research or Thesis per semester and still be considered half-time. Students typically complete all of the program requirements except for the thesis by the end of the fall semester of their second year and enroll for 0.5 unit of EOSC 596 (Research) or 597 (Thesis) each semester after that (students must complete a minimum of 1 unit of Thesis in order to satisfy the program requirements). The decision regarding whether to enroll in 0.5 unit of EOSC 596 or 597 should be based on what the student plans to do during that semester. Students who are primarily collecting or analyzing data should enroll in EOSC 596. Students who are primarily writing their thesis should enroll in EOSC 597. Questions about whether to take EOSC 596 or 597 in a particular semester should be addressed to the Graduate Program Director. Students who do not enroll in classes for a semester will be removed from the program and may need to reapply in order to be reinstated. Students must be enrolled in at least 0.5 unit during the final semester prior to graduating.

#### Events

**Graduate Colloquium:** The Environmental and Ocean Sciences Graduate Program holds a Graduate Colloquium once each year, typically on a Friday afternoon in mid-February. At this event, continuing graduate students present the results of their research during the previous year. Second- and third-year students are expected to present talks, usually 15-20 minutes in length; students who have been in the program for more than three years produce and present scientific posters. All graduate students are expected to attend this event. The graduate Environmental and Ocean Sciences faculty evaluate the presentations, and feedback is provided to each student by their committee chair or thesis advisor.

**Thesis Defenses:** Public thesis defenses by graduate students who are about to complete the program occur throughout the year. Typically, announcements for thesis defenses are posted 1-2 weeks prior to the event. All graduate students within the program are expected to attend thesis defenses.

### Expectations

**Committee Meetings:** A full committee meeting should take place at least once every six months while a student is in the graduate program. These meetings are intended to be beneficial for students, and regular meetings are required for continued good standing within the program. The Graduate Program Director should be informed by the student when a full committee meeting has taken place. Students who have not had a committee meeting within the previous six months may not be allowed to enroll in classes during the subsequent semester.

Individual committee meetings vary, but a common structure is for students to present the major results they've acquired since the previous committee meeting, discuss any questions or concerns about their findings, and lay out a plan (including a timeline, if appropriate) for the subsequent six months until their next full committee meeting. Usually, students meet with their committee chairs well in advance of each committee meeting to discuss the information that they plan to present.

**Dissemination of Results:** An important part of being a scientist is disseminating research results to the scientific community. This typically occurs through presentation of a talk or poster at an academic conference, and through publication in scholarly journals. Presentations constitute excellent opportunities for professional development: meeting and connecting with peers and potential future employers, gathering valuable feedback on a student's work, practicing valuable presentation skills, etc. The graduate program provides some support for students who wish to attend academic conferences to present the results of their thesis research or publish the results of thesis research in a scholarly outlet that charges publication fees. Requests for support should be addressed to the Graduate Program Director (see Funding section below).

**Good Academic Standing:** In order to remain in good academic standing, graduate students must maintain a minimum cumulative grade point average of 3.0. Students whose GPA's fall below 3.0 will be placed on academic probation, and remaining on academic probation for two consecutive semesters may be grounds for academic disqualification from the university. Students are not eligible to receive academic scholarships while they are on probation.

Sometimes, students may receive Incomplete grades for courses, including Research (EOSC 596) or Thesis (EOSC 597). These grades typically indicate that the student has not completed the requirements for that course. All outstanding incomplete grades should be resolved no later than the 10th week of the subsequent semester. Incomplete grades that have not been resolved by that time may be converted automatically into failing grades, which could create negative consequences for a student's academic standing.

**Time Limits:** USD policy states that "all requirements for the master's degree, including the thesis where required, must be completed within six years of matriculation." Extensions may be granted in some cases, but students need to present a compelling rationale for requiring more time to complete their degree program. Leaves of absence (see below) may not be used to extend the six year time limit.



**Intersession and Summer:** As mentioned above, the January intersession and summer are very important times for students to carry out research. Graduate classes are not in session, and students should be able to devote their time to field or lab work (or both) as well as interacting with their committee members during times when faculty usually do not teach classes. Students should not view these time periods as vacations, nor should they take intersessions or summers “off” from research.

## C. Funding

Financial support for EOSMS graduate students comes from a number of sources. This aid can help to cover costs of living, tuition and research. Students within the EOSMS Program do not receive tuition waivers, however they typically get scholarships from the university that can be used to pay some of their tuition costs.

### Department

Most students receive scholarships during their first two years. Dean’s Graduate Merit Scholarships typically are distributed to first- and second-year students. Individual awards cover one academic year, usually split evenly between the Fall and Spring semesters (first year) and primarily in the fall semester (second year), when the majority of tuition costs are incurred. Students must be in good academic standing to receive this scholarship, and students who are on academic probation (cumulative GPA < 3.0) are not eligible for this award.

Additional USD scholarships include the Sister Dale Brown Scholarship and Stephen Sullivan Memorial Scholarship. In the past, these scholarships have been used to support tuition and fees; however, these now are available to support conference attendance and research-related expenses. Additional funds may be available to help defray the costs of printing and binding two copies of each thesis, and publishing the results of thesis research in a scholarly outlet, such as a journal, that charges publication fees. Applications for financial support can be submitted throughout the year and are evaluated by a faculty committee according to the following criteria:

1. **Impact:** What is the likely impact of the requested funding on the student’s success in the Environmental and Ocean Sciences Graduate Program and in their career?
2. **Presentation:** How clearly has the applicant described the purpose for which funding is being requested?
3. **Justification:** How well do the description and rationale support the request? What alternative funding sources are available? How engaged is the applicant within the graduate program?
4. **Budget:** How much money is being requested? Does the requested amount seem appropriate for the proposed purpose?

The application form is included in this handbook as Appendix 2 and is available for [download](#) through the graduate program web site.

### University

**Graduate Grant:** USD graduate students may be eligible to receive a Graduate Grant for semesters in which they are enrolled for six units or more. For academic year 2019-20, that

award can provide up to \$381.25 per unit. Students do not need to apply for the Graduate Grant separately from their standard financial aid application. Questions about eligibility for the Graduate Grant should be addressed to the Office of Financial Aid.

**Scholarships, Grants and Loans:** Graduate students may be eligible for scholarships, grants and loans that do not come directly from the program or university. Information about those forms of financial assistance can be obtained from the Office of Financial Aid.

### External Funding

EOSMS students also have received funding from outside organizations, including the San Diego Foundation, San Diego Association of Geologists, American Women in Science, Graduate Women in Science, Trans-Border Institute, and the San Diego chapter of the Association of Environmental Professionals. Students are encouraged to apply for external funding, in part because of the support that it provides and in part because of the excellent experience associated with applying for scholarships and grants.

Some students are supported in part by grants to their research advisor. In some cases, these grants support the student's thesis research, effectively paying the student to work on their research. However, grant support sometimes requires students to work on aspects of the grant that do not directly contribute to the student's thesis research. In these situations, students should be aware of the time commitment necessary to fulfill their obligations to the grant and budget time separately for their thesis research.

Many EOSMS students work as graduate assistants at USD. Some of these positions exist within the Environmental and Ocean Sciences Department, and others involve working elsewhere within the university. Within the department, students typically help to prepare for teaching labs, maintain instruments and equipment, carry out inventories, prepare for field trips, assist with administrative duties, and a variety of other activities. Descriptions of individual positions within the department are sent to all EOSMS students at least once each year, usually between May and August. Interested students should contact the Graduate Program Director.

Outside the department, Graduate Assistant positions include working with the Shiley Center for Science and Technology building manager, Keith Macdonald, the director of the Graduate Studies Committee within the USD College of Arts and Sciences, and the chair of the Institutional Animal Care and Use Committee (IACUC). Additional GA positions may be available on campus, and descriptions of open positions are accessible through the Student Employment Center ([www.sandiego.edu/financialaid/student-employment/](http://www.sandiego.edu/financialaid/student-employment/)).

EOSMS students who are interested in teaching may be able to serve as instructors for undergraduate courses. Typically, graduate students teach lab sections of courses for which faculty teach the lectures. Student teaching positions require training, and graduate students who are interested in teaching a lab should contact the Graduate Program Director at least one semester before they want to teach. Training usually lasts a full semester and involves working with an experienced instructor who provides guidance on the nature and structure of the lab as well as techniques and expectations for teaching. A list of classes that are offered each semester can be found through the MySanDiego web site. **Note: Teaching opportunities are limited**

**and competitive. Completing the training for a particular class does not guarantee that a student will be able to teach that class.**

Aside from on-campus positions, many students support themselves by working off-campus. San Diego offers numerous opportunities for employment, both within and outside of Environmental and Ocean Science. Whether working on- or off-campus, it's important to be mindful of the number of hours being worked in relation to the time commitment necessary to make progress through a M.S. program. Students who work more than 15-20 hours per week in jobs unrelated to their thesis research tend to greatly prolong their time in the graduate program, compared to those who work fewer hours.

In addition to tuition and living expenses, EOSMS students typically require support for their thesis research. In most cases, that support is provided by the faculty member with whom the student is working. Students also are encouraged to pursue external support for their thesis work by writing proposals to acquire research grants. An introduction to the resources available at USD to support proposal writing is part of the Core Seminar course (EOSC 500) that all students take during their first semester in the EOSMS program.

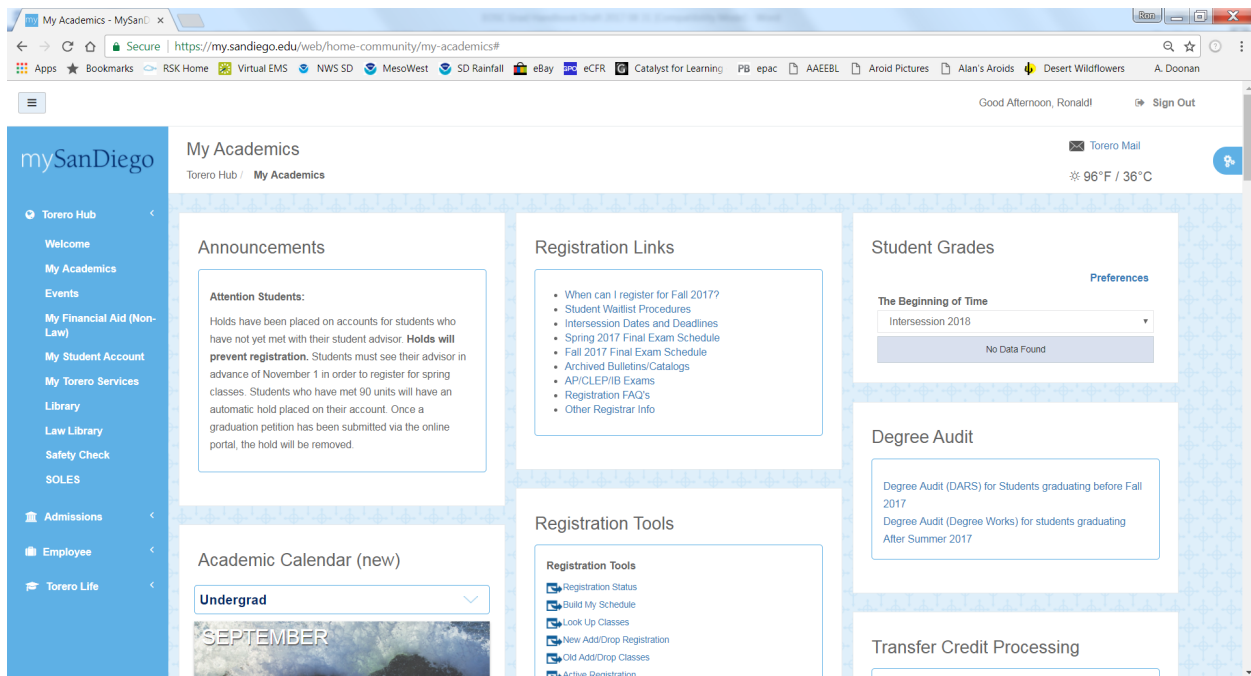
#### Financial Aid

Students typically receive a financial aid package from the university every year they're enrolled in the graduate program. In order to be eligible for this package, **graduate students should fill out a FAFSA each year, before the April 1<sup>st</sup> priority deadline.** Financial aid packages are based on a number of factors, including cost of attendance, an amount calculated by the USD Office of Financial Aid. If the cost of attendance is not adequate to meet a student's financial need, it is possible to request an adjustment from Financial Aid. Inquiries related to financial aid should be addressed to the Office of Financial Aid. Michael Belasco (mbelasco@sandiego.edu) is the Financial Aid counselor who handles graduate student financial aid and should be the first point of contact for all USD financial aid questions. Inquiries about graduate program financial aid (graduate merit scholarships, grants, etc.) should be addressed to the Graduate Program Director. Counselors at the USD One Stop Services Center are primarily familiar with rules and situations that affect undergraduate students and are not always knowledgeable about issues particular to graduate students. EOSMS students are not advised to contact the One Stop Center for inquiries regarding financial aid.

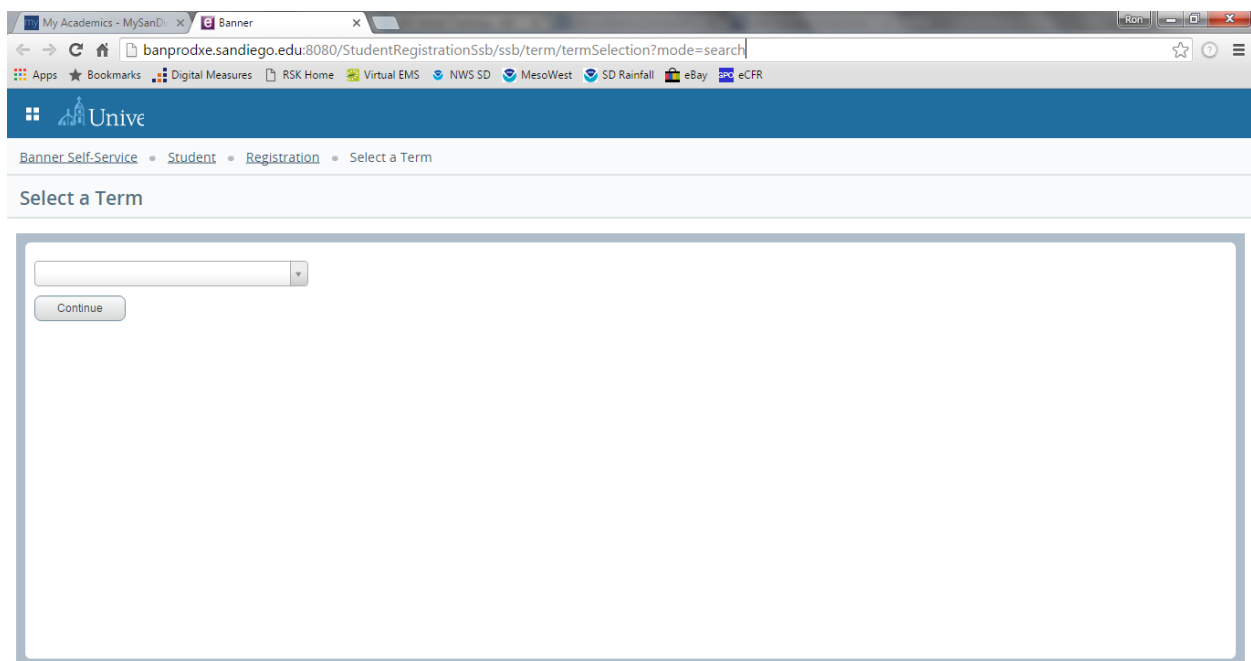
## **D. Rules and Procedures**

### Registration for Classes

Registration for Fall semester classes usually takes place during the preceding summer (incoming students) or spring (usually in April; continuing students). Registration for Spring semester begins in November. For Core Seminar (EOSC 500-501), graduate science courses and electives, students should be able to sign up as soon as the registration period begins. To register for classes, students should log onto their MySanDiego account and click on the My Academics tab. A box titled "Registration Tools" should be located in the center column. The Registration Tools contains links to pages that can be used to view a list of available courses, add or drop courses, and view a student's schedule.



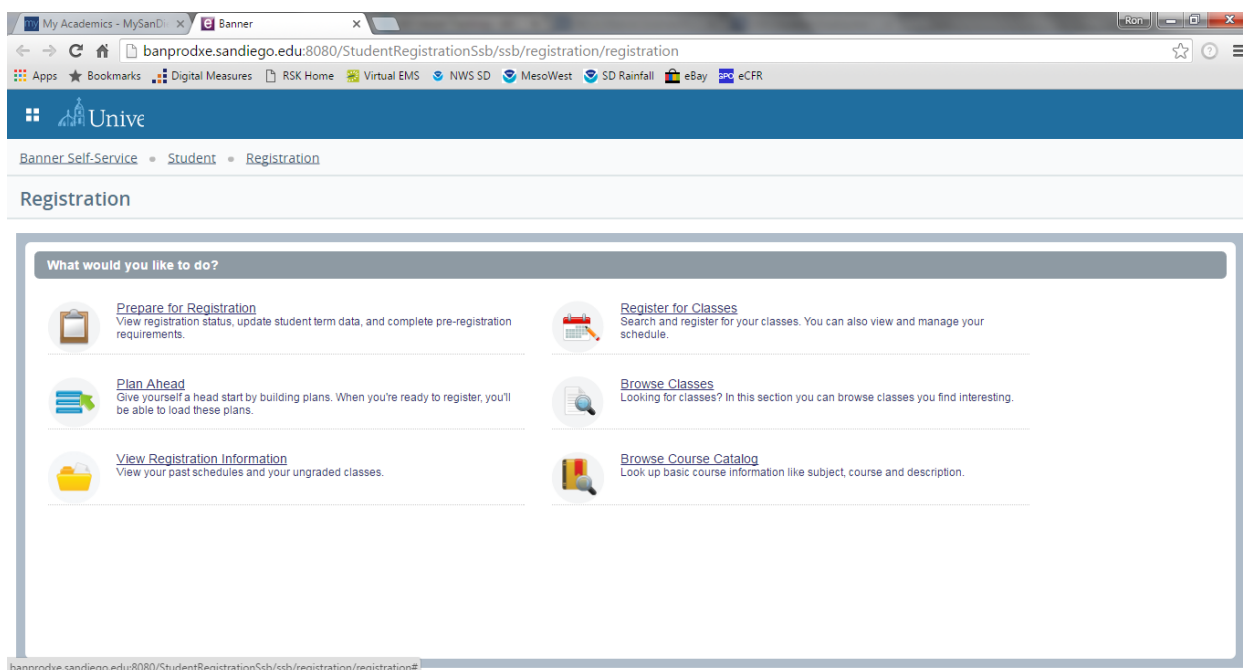
Clicking on the "Look Up Classes" link will lead to the following screen.



Select the appropriate semester and click the "Continue" button. The resulting page will allow a student to search for the available classes for the semester selected.

The screenshot shows a web browser window with the URL `banprodxe.sandiego.edu:8080/StudentRegistrationSsb/ssb/classSearch/classSearch`. The page header includes the University of San Diego logo and navigation links: [Banner Self-Service](#), [Student](#), [Registration](#), [Select a Term](#), and [Browse Classes](#). The main heading is **Browse Classes**. Below this, the section **Enter Your Search Criteria** is displayed. The **Term** is set to **Fall 2017**. The search criteria fields are: **Subject** (text input), **Course Number** (text input), **Keyword** (text input), **College** (text input), **Departments** (text input), and **Campus** (text input). There is an **Open Sections Only** checkbox, which is currently unchecked. At the bottom of the search criteria section are three buttons: **Search**, **Clear**, and **Advanced Search**.

Environmental and Ocean Sciences classes can be viewed in several ways, one of which is to enter "Environmental and Ocean Sciences" or select "Environmental & Ocean Sciences" from the dropdown menu in the "Subject" field and click the "Search" button. Graduate courses are number 500 or higher. Each section has a unique four-digit CRN that will be needed to enroll in that class. To register for classes, you can select from the list of courses in this search result. Some courses are listed as "Full" and can't be added through this search result. This is the default setting for all sections of EOSC 596 (Research) and EOSC 597 (Thesis). For these, start in the "Registration Tools" box and click on ""New Add/Drop Registration." This should take you to the following screen.



Select "Register for Classes" and select the "Add CRN" tab. Enter the CRNs for the sections you want to take in the rectangular boxes and click the "Submit" button to enroll in those classes.

For Research (EOSC 596) and Thesis (EOSC 597), students need to request a registration override from the Graduate Program Director for the particular section(s) they want to take. Once the override has been generated, students should be able to sign up online using the “New Add/Drop Registration” option.

Registration for classes is not the same as paying tuition. The [deadline to pay tuition](#) for a particular semester is approximately two weeks before the semester begins. Payment deadlines and other important dates for graduate students can be found on the graduate academic calendar at [www.sandiego.edu/academics/academic\\_calendars/](http://www.sandiego.edu/academics/academic_calendars/).

### Transferring Courses from Other Institutions

Graduate-level courses from other institutions may be transferred to USD for credit, usually as electives within the EOSMS program. To transfer a course from another institution to USD, students first should consult the graduate program director regarding the course and whether it is likely to be accepted at the graduate level at USD. Assuming that the course seems appropriate, a Petition for Transfer of Credit should be completed and approved prior to enrolling in the course. The petition form can be found at

[www.sandiego.edu/graduaterecords/documents/GR-transfer-credit-form-2014.pdf](http://www.sandiego.edu/graduaterecords/documents/GR-transfer-credit-form-2014.pdf)

### Access to Building and Labs

Graduate students have 24-hour access to the Shiley Center for Science and Technology (SCST). The building has two ID card readers on the exterior of the building: one on the third floor, to the right of the main doors, and one on the loading dock, to the left of the doors.

Graduate student ID cards are coded to permit access to the building through those doors. Access is enabled for one semester at a time, expiring on January 31<sup>st</sup> and August 31<sup>st</sup> each year. Students who are continuing in the program should have their access updated before these two days each year. Continuing students who are unable to access the building with their ID cards should contact the Graduate Program Director.

Students also have access to a number of rooms within the SCST, including the graduate lounge (ST 149), faculty research labs, and rooms that contain analytical instruments and other department facilities. Access to those rooms also requires a valid ID card, which is coded by Keith Macdonald (ST 329; keithm@sandiego.edu; x4211). For the building, room access is enabled one semester at a time. Students who are enrolled in the program will have their access renewed before those dates but will need to go to Card Services to have their cards recoded. Any problems with access to the building or rooms within the building should be reported to the Graduate Program Director and the Executive Assistant.

### Conducting Research

Each graduate student will conduct research under the supervision of a faculty member. In order to work in any of the labs at USD, students must receive safety training appropriate to the lab in which they will work. Typically, this means going through general safety training (sessions held at the beginning of every fall semester) as well as training specific to the work that they will do. For example, students who will be doing field research are required to complete field safety training. Students who will be using particular pieces of equipment are required to be trained on that equipment by a faculty member who is familiar with its use.

Research protocols for each student should be approved by their research supervisor. Research that requires department resources (equipment, vehicles, rooms) or involves the use of hazardous chemicals should be approved in advance by the student's research supervisor as well as the department lab manager. This approval may require submission of a written research plan that can be reviewed by the supervisor and lab manager. Irresponsible use of those facilities or chemicals may lead to restricted use of department facilities by the student until after the problem has been corrected.

Research projects involving animal subjects may require approval by the USD Institutional Animal Care and Use Committee (IACUC). Information about the policies and procedures for working with animals on campus as well as an application form for permission to work with animal subjects can be found at [www.sandiego.edu/documents/academics/animal\\_care.pdf](http://www.sandiego.edu/documents/academics/animal_care.pdf)

### Scientific Ethics and Practices

Students should practice sound ethical principles in conducting research and publishing results. It is expected that students will conduct their own research, report their results faithfully (i.e. not selectively report or analyze data without strong, unbiased justification), acknowledge all sources of assistance and support, and not plagiarize in the reporting of their results. If there are questions about the ethics of a particular practice, students are encouraged to talk to their committee chairs and other faculty for guidance.

One issue that sometimes arises is the ownership of scientific data and samples that are collected as part of a graduate student's research. Typically, data and samples that are collected as part of a graduate student's research within a particular faculty member's lab are considered to be owned by that faculty member. However, data and samples that are acquired with support from the university or an external funding agency will need to be managed in accordance with the guidelines of that organization. Students who have questions or concerns about ownership of data and samples that they collect should discuss those concerns with their thesis chair and/or the graduate program director.

Authorship on scientific communication (talks, posters, manuscripts) resulting from a graduate student's thesis research should acknowledge the people who contributed substantially to the successful completion of that work. Standards for authorship vary considerably, and the EOSMS graduate program does not have a single, uniform policy. However, standards for inclusion as an author (*vs.* acknowledgment for contributions) may be viewed as participation in one or more of the following aspects of a research project: concept, design, execution, analysis, writing. Some researchers also view financial and logistical support as a criterion for authorship. All authors should have ample opportunity to review conference abstracts, posters, talks and manuscripts prior to their presentation or submission for publication.

### Petitioning to Graduate

Students who plan to complete the EOSMS program must submit a Petition to Graduate, the form for which can be downloaded from the Graduate Records web site at [www.sandiego.edu/graduaterecords/forms/index.php](http://www.sandiego.edu/graduaterecords/forms/index.php). USD has three graduation months each year: January, May, August. Petition deadlines for those graduation dates generally occur just over eight months earlier (e.g., the petition deadline for May graduation usually occurs in mid-October). For the 2019-20 academic year, those dates are:

<u>Graduation Month</u>	<u>Petition Deadline</u>
May 2020	Oct. 11, 2019
Aug. 2020	Dec. 21, 2019
Jan. 2021	May 23, 2020

In practice, students often petition to graduate after these deadlines have passed. However, it is very important to submit a graduation petition before the thesis defense takes place. Sometimes, a student petitions to graduate in a particular month and ultimately decides to delay their graduation date. In this case, a new petition should be filed in order to allow the student to register for an additional semester, if that turns out to be necessary.

### Scheduling a Thesis Defense

Thesis defenses typically are scheduled 2-3 months prior to the defense date. A student should work with their committee chair to propose defense dates to the other committee members. Often, it can be difficult to find a date and time that work for everyone, and it's recommended that the scheduling process begin as soon as the student and committee chair have an accurate sense of when the defense could occur, based on the imminent completion of a near-final thesis draft. It is important to communicate with the Graduate Program Director as the defense date and time and being selected, in order to avoid conflicts with other events.



Once a defense date and time have been selected, the student or committee chair should contact the Executive Assistant to schedule a room and arrange the post-defense reception.

### *Submitting a Thesis*

The physical format of a thesis may vary somewhat among students, but there are some requirements that must be followed. Original copies of the thesis must be printed on 8.5 x 11 inch white paper. A standard font such as Times or Courier must be used (12 point), though smaller type may be used for figures or tables. Text should be double-spaced, and only one side of each sheet of paper is to be used. Margins should be 2 inches from the left edge of each page and 1 inch from the top, bottom and right edges. For facing pages that provide captions for figures or tables, the left and right margins should be 1 and 2 inches, respectively, since the right margin will be attached to the binding.

The initial section of the thesis includes a title page, signature page, copyright page, and a number of others, ending with an abstract. A template for these initial pages is included as Appendix 3 to this handbook and is available from the Graduate Program Director as a Word document. The content in the rest of the thesis may be organized according to the preferences of the committee. However, a number of faculty within the EOSMS program require their students to organize the thesis to facilitate submission of individual chapters for publication with minimal additional editing. In this model, the thesis content begins with an introduction to the thesis, including pertinent published literature, and a list of references. This introduction is followed by one or more chapters that are written as complete manuscripts (abstract, introduction, methods, results, discussion, references) that could be submitted for publication. Sometimes, a short chapter (e.g. reporting the design and results of a pilot study) is included between the introduction and the first manuscript chapter. The manuscript chapter(s) is/are followed by a conclusion to the thesis that synthesizes information from the preceding chapters and provides an opportunity for students to present ideas that may be worth sharing but fall outside the scope of a manuscript chapter that is written for submission to a journal. Additional information can be included in one or more appendices to the thesis. Appendices usually include information that doesn't seem to fit into any of the preceding chapters but should appear in the thesis so that it can be available to future researchers. In the past, appendices have included materials such as data tables, detailed descriptions of methods, and figures illustrating results that were presented in summary form in a manuscript chapter.

In order to graduate and receive a diploma, a student must have completed all of the course requirements for the program, submitted an electronic copy of their thesis (see below), and delivered a minimum of two complete, bound copies of their thesis, at least one on 25% acid-free cotton paper, to the bindery by the last day of the appropriate graduation month. In San Diego, the bindery used by all EOSMS students is Montezuma Publishing ([montezumapublishing.com](http://montezumapublishing.com)). The graduate program will cover the cost of printing and binding the two required hard copies. Receipts for those expenses should be submitted to the Graduate Program Director.

After the thesis copies have been bound, one copy on cotton paper must be delivered to the Graduate Program Director. The second copy is for the student's committee chair and need not be printed on cotton paper. Acknowledgment that these copies have been received requires

completion of a sign-off sheet that is part of the document describing procedures for electronic submission of a master's thesis (see below).

Electronic submission of the thesis should be carried out following the instructions at

[www.sandiego.edu/graduaterecords/thesis.php](http://www.sandiego.edu/graduaterecords/thesis.php)

As part of the electronic submission process, students must select an embargo period of 0, 1 or 2 years. The embargo period is the length of time between the date that a thesis is submitted electronically and the date when it becomes available to the public. This period provides an opportunity for thesis material to be submitted for publication before the thesis is made available in digital form. Students should discuss selection of the embargo period with their committee chair before the thesis is submitted electronically.

### Leave of Absence

Leaves of absence for up to one year can be requested by filling out a Petition for Leave of Absence form, which can be obtained from the Graduate Records web site at

[www.sandiego.edu/graduaterecords/forms/loa-withdrawal.php](http://www.sandiego.edu/graduaterecords/forms/loa-withdrawal.php)

A leave of absence is “an approved, limited suspension of participation in a graduate program” and allows students in good academic standing to take time off and return without having to apply for readmission to the program. Approved leaves of absence may not be used to extend the six year deadline for completion of all master’s program requirements. Students who fail to return after their leave period has expired or who are absent for more than one calendar year must apply for readmission if they wish to return to the program.

## **E. Student Life**

### Environmental and Ocean Sciences Graduate Student Representative

The graduate representative serves as the liaison between the graduate students and the Environmental and Ocean Sciences faculty and staff, including the Graduate Program Director. Typically, the grad rep is a second-year student who is elected by the other Environmental and Ocean Sciences grad students at the end-of-the-year graduate barbecue, which takes place every May. The grad rep serves as an important contact for the other grad students, especially prospective and first-year students who may have questions about the program and university. In that role, the grad rep distributes announcements (seminars, thesis defenses) and reminders (deadlines, etc.) of general interest to the EOSMS graduate students. The grad rep also works with the Graduate Program Director to organize events, including the beginning- and end-of-year graduate receptions as well as thesis defense receptions.

### Graduate Student Council

The Graduate Student Council (GSC) is composed of representatives from each of the academic units that has at least one graduate program. The graduate and law students who serve on this council work to address the needs of students across the university. Representatives to the GSC are supposed to come from all of the units and programs, including the Environmental and Ocean Sciences Graduate Program. The time commitment associated with this organization

is generally limited, unless a student chooses to get involved with multiple committees that address various issues being considered by the GSC. More information about the GSC, its activities, meeting schedule, bylaws and minutes of past meetings, as well as useful information for USD graduate students can be found on the GSC web site at [www.sandiego.edu/gradlife/gsc](http://www.sandiego.edu/gradlife/gsc).

### Graduate and Law Commons

Located in Student Life Pavilion (SLP) 401, this is a space for graduate and law students only. The commons includes a television and free coffee and tea, and provides a space for group study sessions, meetings, and other graduate student events. This area houses the Graduate Student Council office as well as the office of the Graduate University Minister. Information about this space can be found at [www.sandiego.edu/gradlife/commons/facilities-amenities.php](http://www.sandiego.edu/gradlife/commons/facilities-amenities.php)

### Health Insurance

All USD students are assessed a health fee that provides them with access to USD Wellness Services at:

Student Health Center  
[www.sandiego.edu/healthcenter](http://www.sandiego.edu/healthcenter)  
Maher Hall 140, x4595

Counseling Center (including Disability Services)  
<http://www.sandiego.edu/usdcc/>  
Serra Hall 300; x4655

Center for Health and Wellness Promotion  
<http://www.sandiego.edu/chwp/>  
University Center 161; x4618

Students also may purchase supplemental health insurance. Information about insurance plans is available through the Student Health Center web site at [www.sandiego.edu/health-insurance/](http://www.sandiego.edu/health-insurance/)

### Useful Contacts

Note: All four-digit extensions on this list can be reached directly by dialing (619) 260-xxxx

Public Safety  
[www.sandiego.edu/safety](http://www.sandiego.edu/safety)  
Hughes Center 151, **Emergency: x2222**, non-emergency: x7777, [publicsafety@sandiego.edu](mailto:publicsafety@sandiego.edu)

Environmental and Ocean Sciences Graduate Program  
[www.sandiego.edu/cas/ms-marine-science/](http://www.sandiego.edu/cas/ms-marine-science/)  
Drew Talley, Director  
ST 266, x6810, [dtalley@sandiego.edu](mailto:dtalley@sandiego.edu)

Environmental and Ocean Sciences department office  
[www.sandiego.edu/cas/envi-ocean/](http://www.sandiego.edu/cas/envi-ocean/)

Soroya Rowley, Executive Assistant  
ST 284, x4795, [soroya@sandiego.edu](mailto:soroya@sandiego.edu)

Shiley Center for Science and Technology  
Keith Macdonald, Building Manager  
ST 329, x4211, [keithm@sandiego.edu](mailto:keithm@sandiego.edu)

Graduate Admissions  
[www.sandiego.edu/admissions/graduate](http://www.sandiego.edu/admissions/graduate)  
Serra Hall 202, x4524, [grads@sandiego.edu](mailto:grads@sandiego.edu)

Graduate Records  
[www.sandiego.edu/graduaterrecords](http://www.sandiego.edu/graduaterrecords)  
Ruey Shivers, Assistant Registrar  
Founders Hall 117, x2217, [rshivers@sandiego.edu](mailto:rshivers@sandiego.edu)

Graduate Student Life  
[www.sandiego.edu/gradlife](http://www.sandiego.edu/gradlife)  
Mariann Sanchez, Director  
SLP 401, x2227, [marianns@sandiego.edu](mailto:marianns@sandiego.edu)

Graduate and Law Student Ministry  
[www.sandiego.edu/ministry/faith-formation/graduate-law-student-ministry/](http://www.sandiego.edu/ministry/faith-formation/graduate-law-student-ministry/)  
Fr. Gino Correa, University Chaplain  
SLP 401A, x8708, [correagi@sandiego.edu](mailto:correagi@sandiego.edu)

Bookstore (USD Torero Store)  
[www.usdtorerostores.com](http://www.usdtorerostores.com)  
Hahn University Center, x4551

Campus Card Services (ID card, campus cash card)  
[www.sandiego.edu/campuscard](http://www.sandiego.edu/campuscard)  
UC 127, x5999

Cashier  
[www.sandiego.edu/finance/cashiers](http://www.sandiego.edu/finance/cashiers)  
Hughes Center 211, x4809

Human Resources  
[www.sandiego.edu/hr](http://www.sandiego.edu/hr)  
Maher Hall 101, x4594

Information Technology Services (computer and instructional technology support)  
[www.sandiego.edu/its](http://www.sandiego.edu/its)  
UC 117, x7900

Office of Financial Aid

[www.sandiego.edu/financialaid](http://www.sandiego.edu/financialaid)

Hughes Center 319, x2700, [usdofas@sandiego.edu](mailto:usdofas@sandiego.edu)

Michael Belasco, [mbelasco@sandiego.edu](mailto:mbelasco@sandiego.edu)

One Stop Student Center (financial aid, registration, student accounts)

[www.sandiego.edu/onestop](http://www.sandiego.edu/onestop)

University Center (UC) 126, x2700, [onestop@sandiego.edu](mailto:onestop@sandiego.edu)

Parking Services

[www.sandiego.edu/parking](http://www.sandiego.edu/parking)

UC 102, x4518

Payroll

[www.sandiego.edu/finance/payroll](http://www.sandiego.edu/finance/payroll)

Maher Hall 112, x4818

Student Employment Center

[www.sandiego.edu/financialaid/student\\_employment.php](http://www.sandiego.edu/financialaid/student_employment.php)

Hughes Center 313, x4801, [usdsec@sandiego.edu](mailto:usdsec@sandiego.edu)

Student Health Center

[www.sandiego.edu/healthcenter](http://www.sandiego.edu/healthcenter)

Maher Hall 140, x4595

## **E. Tips for Success in the Graduate Program**

### **Tips from EOSMS faculty**

- Take ownership of your graduate education. That means being proactive about getting the resources you need to carry out your research. It also means taking the lead on scheduling meetings with your committee chair, other committee members and others who are helping you carry out your thesis research. If you do not appear to be proactive about your own research, others may get the impression that you're not very enthused about your project.
- Being a good marine scientist entails gaining an interdisciplinary background that goes beyond just learning about your thesis topic. Be open to learning new things, including attending seminars that may not be directly related to your research.
- Make copies of your research results (notebooks, data files, etc.) and spread them out between locations so that they can't all be lost in a single accident or other event. Don't put yourself in a position to lose all of your research-related files when the one computer on which they're stored is stolen or suffers a hard drive failure. Backing up the important files on a remote device isn't useful, if that device is in the same location as the computer.

- Strive to become an independent, critical thinker. The best graduate students develop into colleagues during their time in grad school. Pursue that goal.
- Being a graduate student is being part of a community - one in which faculty trust and expect you to rise to the challenges of being engaged and involved in your education. This means that in addition to your research, you actively participate in university life, departmental activities and your courses. Graduate school is about building relationships with your advisor, committee members, professors and peers.
- Seize the opportunity to become role models and mentors for the undergraduate students with whom you may share laboratories and/or classrooms.
- Learn to manage your time, and the time of others, efficiently. For example, if you require feedback from co-authors on an abstract submission give your colleagues advance notice. Perhaps send them an email letting them know they will be receiving something for review shortly and asking them to please set aside time in their schedule. They may tell you that they will be out of town during the deadline and ask you to provide a draft earlier. If advance warning is given, the review process will be a lot smoother, and you can avoid the stress associated with an impending deadline.
- Expect tasks to take longer than you anticipated (but don't use this as an excuse!). Lab and field work are notorious for producing unexpected delays: floods may inundate your study area, bushfires could damage your field logging equipment, a landslide could prevent access to the intertidal zone, sampling permits might take months to acquire, instruments may need parts replaced, etc. This advice applies also to your writing, whether it's a thesis draft, short paper, or an abstract. It's satisfying to complete a draft and send it to others for comment, but don't fall into the trap of thinking the hard work is done. Many times, addressing the comments on our work can represent a significant amount of time and dedication. I like to think that once I've submitted something for review that I'm only 2/3 of the way towards completing the task. Then, I can budget time for addressing reviewer comments and not be surprised or disheartened if my draft is returned covered in lots of red ink!
- Find the time of day when you are the most active 'thinker' and schedule data interpretation or reading papers for this time. Identify the times when you are more distracted (e.g., three o'clock chocolate time) and use this time for lab/field prep, small tasks or meetings, or catching up on emails.
- Immerse yourself in the graduate experience. Rarely in your career will you get to so closely interact with researchers from multiple disciplines. Help out your fellow grad students with their research – discuss your work with professors in the department – attend seminars in other fields. All of these interactions will improve your work and make you a more well-rounded and capable scientist.

### **Tips from EOSMS students**

- You need to be accountable for your own work and take initiative. The professors are only here to guide you.
- You're **expected** to support the department and your fellow graduate students, which includes attending thesis defenses, department-sponsored events/lectures, etc.
- Grad school is not an IQ test, it's a training program. You are training for your career, so ask questions now, and don't feel like you should know everything.
- Know your worth, don't let the know-all of academia make you feel insecure.
- Take advantage of every opportunity you can and network as much as possible because that is how you'll set yourself up for success after grad school.
- Connect with other research organizations in the area, especially if you plan on staying in San Diego. The USD faculty are well connected so they are a good starting point and can help you get involved in other organizations depending on your interests (education, outreach, other research experience etc).
- It's not a competition. Everybody's journey in grad school is different because everybody's thesis is different. We all have different starting points, and all have different projects, so it would be pointless to compare.
- Get involved with the department by volunteering on field trips, going to events, and attending all the thesis defenses.
- Set up regular meetings with your advisor. It may be easiest to establish a regular meeting date/time - just make sure you two touch base at least every week or two. Go to meetings prepared with questions/topics to cover so you are efficient with both your time and theirs.
- Always be writing, always be reading.
- Plan for each task to take twice as long as you would expect. You will be surprised by the kinds of setbacks/distractions that arise! With that, set small goals so you have daily accomplishments.
- Surround yourself with positive and supportive people. Luckily, you're coming into a really strong support group of students and faculty!

## **F. Housing**

San Diego consists of many different neighborhoods, each with a distinctive community. This diversity can be very confusing at first, but residents can select an area that has the kind of atmosphere that suits their personality, subject to affordability. The Southern California climate has a strong influence on the cost of housing. Near the beach, the climate is milder, and the cost of housing tends to be high. Rental prices get progressively lower with increasing distance away (east), as the climate becomes less moderate and real estate prices decrease. In San Diego, those changes often occur over relatively short distances. For example, the high temperature at the beach in late July/early August may be 75-78 °F, compared to 80-85 °F a few miles inland and 90-95 °F or even hotter 10-15 miles east of the beach. Most USD graduate students live less than 10 miles from the coast, and the neighborhoods described below all are located in areas with relatively mild climates.

A limited amount of graduate student housing is available on the USD campus. More information can be found at

[www.sandiego.edu/residentiallife/student\\_housing/graduate\\_law\\_housing.php](http://www.sandiego.edu/residentiallife/student_housing/graduate_law_housing.php)

In general, on-campus housing is in high demand and fills up early. Students who are interested in living on-campus are encouraged to apply as soon as they know they'll be attending USD.

Off-campus housing is also available, and USD has a web site that includes a great deal of information for graduate and law students who would prefer to live off-campus. That web site can be found at

[www.sandiego.edu/offcampushousing/index.php](http://www.sandiego.edu/offcampushousing/index.php)





Image courtesy of [www.nomadsoccer.org](http://www.nomadsoccer.org).

# ENVIRONMENTAL AND OCEAN SCIENCES

Name: \_\_\_\_\_

Title of thesis: \_\_\_\_\_

## **COMMITTEE MEETING**

Thesis proposal approved      Date: \_\_\_\_\_

Completed Committee      Date: \_\_\_\_\_

\_\_\_\_\_, Chair

\_\_\_\_\_, Thesis Advisor (if appropriate)

## **THESIS COMMITTEE ON CANDIDACY**

\_\_\_\_\_ recommend

\_\_\_\_\_ postpone decision

\_\_\_\_\_ not recommend

\_\_\_\_\_  
Thesis Chair Signature

\_\_\_\_\_  
Date

\*\*\*\*\*  
Admitted into candidacy

\_\_\_\_\_  
Graduate Director

\_\_\_\_\_  
Date

## Appendix 2

### Application for Environmental and Ocean Sciences Graduate Funding



Applicant Name \_\_\_\_\_

Application Date \_\_\_\_\_

Purpose of Funding \_\_\_\_\_

\_\_\_\_\_

Amount Requested \$ \_\_\_\_\_ Date Needed \_\_\_\_\_

Please fill out and submit this application, including:

- 1) A **brief description** of the purpose for which this funding is being requested, including an explanation of how the requested funding will contribute to your successful completion of the Environmental and Ocean Sciences M.S. program. Your description should occupy no more than one page, single-spaced, with 1" margins and 12 point Times Roman font.
- 2) A **detailed budget** with an accompanying **budget justification**. Also provide a brief description of **other sources** of support for this work as well as a list of past funding from the department. The budget and rationale also should occupy no more than one page, with the same format guidelines as the project description.
- 3) A paragraph describing **engagement** in the graduate program, including participation in program-related activities and service provided to the department.

If references are cited in the description or rationale, a list of those references may be included on a separate page, i.e. the list will not be counted against the page limits. The completed application should be e-mailed to your committee chair, who should complete the chair approval section and forward the entire document to the graduate program director.

Applications will be considered by a committee consisting of three faculty: the graduate program director, department chair, and one other faculty member. Each application will be evaluated with respect to the following criteria:

5. **Impact:** What is the likely impact of the requested funding on the student's success in the Environmental and Ocean Sciences Graduate Program and in their career?
6. **Presentation:** How clearly has the applicant described the purpose for which funding is being requested?
7. **Justification:** How well do the description and rationale support the request? What alternative funding sources are available? How engaged is the applicant within the graduate program?
8. **Budget:** How much money is being requested? Does the requested amount seem appropriate for the proposed purpose?

Awards will represent the upper limit for funding, i.e. if actual expenses are less than the amount awarded, reimbursement will only cover the actual expenses. For items ordered through the department, expenses will be charged against the appropriate budget, and no expense report should be required. Expenses paid by the awardee should be documented with original receipts, and an expense report will be required in order to receive reimbursement. Expense reports must be submitted within 60 days of the payment or event. Awardees should not expect to be reimbursed for expense reports submitted more than 60 days after the payment or event.

## **Appendix 2**

### **Application for Environmental and Ocean Sciences Graduate Funding**

#### **Brief Description of Purpose for Funding**

**Appendix 2**  
**Application for Environmental and Ocean Sciences Graduate Funding**  
**Detailed Budget and Justification**

**Engagement within the Graduate Program**

## Appendix 2

### Application for Environmental and Ocean Sciences Graduate Funding



#### **Chair Comments** (To be completed by committee chair)

In the space below, please comment on this application, especially with respect to the evaluation criteria listed on the first page. After adding your comments, forward the completed application to the graduate program director.

**Appendix 3**  
**Format for Initial Section of M.S. Thesis**

**Note:** The following pages have a left margin of 2" to accommodate the thesis binding. All other margins are 1".

**Appendix 3**  
**Format for Initial Section of M.S. Thesis**

UNIVERSITY OF SAN DIEGO

San Diego

Title of thesis

A thesis submitted in partial satisfaction of the  
requirements for the degree of

Master of Science in Environmental and Ocean Sciences

by

Student Name

Thesis Committee

Name, Ph.D., Chair

Name, Ph.D.

Name, Ph.D.

2018



**Appendix 3**  
**Format for Initial Section of M.S. Thesis**

The thesis of Student Name is approved by:

---

Name, Ph.D., Chair

---

Name, Ph.D.

---

Name, Ph.D.

University of San Diego

San Diego

2018

**Appendix 3**  
**Format for Initial Section of M.S. Thesis**

Copyright 2018 Student Name

**Appendix 3**  
**Format for Initial Section of M.S. Thesis**

### **Appendix 3**

#### **Format for Initial Section of M.S. Thesis**

##### **DEDICATION**

If desired. If not, then this page need not be included.

**Appendix 3**  
**Format for Initial Section of M.S. Thesis**  
**ACKNOWLEDGMENTS**

People you'd like to thank. Sources of funding also should be acknowledged in  
this section.

**Appendix 3**  
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**ABSTRACT**