

GRADUATE

STUDENT

HANDBOOK

DEPARTMENT OF OCEAN
ENGINEERING AND MARINE
SCIENCES

September 2018

PREFACE

The Graduate Student Handbook was written to provide graduate students with information about policies, procedures, and academic activities in the Department of Ocean Engineering and Marine Sciences. Students should use the Handbook as a companion to the University Catalog and the policies and procedures published by the University. This Handbook should not substitute for either. Graduate policies and procedures are available at <http://www.fit.edu/grad-programs/policies.php>. The Graduate Student Handbook is available through the OEMS [Forms and Documents](#) web page.

All graduate students are required to read this Handbook and familiarize themselves with its contents. It contains important information pertaining to your educational experience at FIT. Students are required to acknowledge reading this handbook by signing and returning the **Graduate Student Handbook Acknowledgment Form** by 5:00 p.m. Monday, October 1, 2018.

Students should read the Handbook and the policies and procedures thoroughly and familiarize themselves with their contents. It is the student's responsibility to be aware of the relevant policies, deadlines, dates, programs, etc. When questions arise, the student should first ask his/her advisor before talking to anyone else.

The Handbook includes Instructions for Preparing a Proposal, Thesis and Dissertation. These instructions have been approved by the Graduate Programs Office and must be followed explicitly. The formatting requirements in this guide take precedence over all other manuals and style sheets. Do not use other theses and dissertations as guides for format. From time to time, the Graduate Programs Office will publish format or style instructions that will differ from ours. Those instructions are for students in departments that do not have their own guidelines and instructions. You will continue to follow the instructions in this manual unless told otherwise by your Department Head.

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ACADEMIC POLICIES AND DEGREE REQUIREMENTS

QUICK REFERENCE FOR DEPARTMENT POLICIES AND PROCEDURES

ACADEMIC DISHONESTY. Academic dishonesty, in any form, is a serious offense and will not be tolerated. Dishonesty includes cheating, plagiarism, deception of effort, and unauthorized assistance. Academic dishonesty may result in a failing grade in a course and/or suspension or dismissal from the Graduate Program and FIT. Falsification of data is an extremely serious offense and can be grounds for immediate dismissal. Plagiarism is discussed separately.

ADMISSION TO CANDIDACY. A student must fulfill specific requirements for the master's degree (p. 19) or doctorate (p. 28) to be admitted to candidacy.

ADVISOR. Your advisor is the faculty member with whom you will work most closely during the period of graduate study and research. Your advisor will sign forms, help with the program plan, supervise the writing of the proposal, and direct your research, etc. It is imperative that you can openly discuss all aspects of your graduate progress. If your research interests change and your new interests no longer lie in the area of your advisor's expertise, then you must change advisors (see Change of Advisor). Your new advisor must have the expertise to supervise your graduate research; otherwise you will not be permitted to conduct it.

ADVISORY COMMITTEE. The term 'advisory committee' is used to designate the graduate-student's committee prior to his/her admission to candidacy. This committee is called the student's thesis or dissertation committee after his/her admission to candidacy. Henceforth, the terms 'committee,' 'graduate committee,' and 'student's committee' are used synonymously in this document. For the master's degree, there are at least three members (p. 20) and for the doctoral degree five members (p. 26) in this committee. The Graduate Program Committee (GPC; p. 4) must approve the composition of the committee for balance and uniformity. All graduate students must meet once per semester with their advisory committees. Since the committee must be formed in the first year of graduate training, the first meeting will be held in the first year. These meetings must include the student, the faculty advisor and all committee members. Following the meeting, the student will be responsible for completing the **Report of The Advisory Committee Meeting** form and submitting it to his/her advisor. The reports are distributed to the committee and are maintained in the student's file. A student may not register for any semester if a report has not been filed in the prior six months. These reports will be considered a record of student progress and will be available for future meetings of the student's committee. Failure to complete biannual meetings indicates a lack of progress and may result in a student being dismissed from the program.

ANIMAL CARE. Animals used in research must receive humane treatment at all times. Animals must be maintained under proper sanitary conditions and be sacrificed according to acceptable procedures. The federal government makes unannounced inspections to enforce compliance with these standards. The Institutional Animal Care and Use Committee (IACUC) must provide written approval prior to the acquisition and use of any live vertebrate animals in either teaching or research laboratories. Discuss this matter with your major professor before you begin research involving any animal.

APPEAL OF GRADES. Only the instructor can request a change of grade. Normally, grade changes are permitted only when the instructor finds that an error was made in the computation or reporting of the final grade. The instructor cannot change the grade based on additional work performed or tests taken by the student after the last day of regular classes. Changes of grade do not take effect unless approved by the Department Head and the Dean of the College of Engineering and Science. If the student believes that the grading in a course was unfair or capricious, then the student should discuss this complaint with the instructor. If the complaint is not resolved after discussing it with the instructor, then the student should meet with the Program Chair in-charge of Graduate Programs and the Department Head.

AUTHORSHIP ORDER FOR PUBLISHED THESES/DISSERTATIONS. In science, the student and advisor have traditionally co-authored the publications resulting from thesis/dissertation research. Authorship order depends upon balancing several factors. For example, the advisor has: 1) generally developed the original research idea; 2) taught techniques, methodologies, and scientific approaches; 3) helped with the completion of the project; and 4) overseen the writing of the thesis/dissertation. In addition, the advisor often contracts and bears scientific and financial responsibility to the funding agencies for administering and successfully completing the projects. On the other hand, the student has: 1) done most of the work; and 2) contributed to the success of the project.

There are other considerations that may complicate matters. A large collaborative project involves many graduate students contributing to different parts of the project over a period of months or years. Under these circumstances, the authorship order becomes more difficult to assign. For these reasons, the advisor and student can avoid future misunderstandings by candidly discussing the authorship order.

GRADUATE RESEARCH. MAR 5995 and Special Topics 5901-5903. These courses consist of the development, execution, documentation and evaluation of an original research project on which the student and the faculty member agree. The components to be completed during the semester are as follows:

1. Selection of a research topic designed to advance knowledge in the field, and to simultaneously instruct the student in current investigation in the discipline.
2. Preparation of a list of references on the research topic, to be read and discussed during the semester.
3. Design of the research project to be completed during the semester.
4. Organization of regularly scheduled meetings between student and faculty to discuss research progress and analyze relevant papers from the reference list.
5. Preparation of a paper describing the accomplishments of the research project (see p. 11). The paper should consist of: Title Page, Introduction, Materials and Methods, Results and Discussion, and References. The paper should clearly illustrate the research accomplishments as well as an understanding of the literature in the field. The paper must be submitted to the faculty member no later than the beginning of the last week of classes of the semester.

6. Evaluation and critique of the paper by the faculty member and discussion of corrections and improvements.
7. Submission of a final copy of the paper to the Department no later than the Friday of finals week.
8. The grade for the course will be based on an evaluation of the student comprehension of the research topic and performance of the research, as evidenced by the quality of the student's final paper.

CHANGE OF ADVISOR. There are two primary reasons for changing advisors: 1) change in research interests and 2) personal or professional differences with the advisor. Regardless of the reason, the student should inform and discuss the change with the advisor. The student must also inform the GPC and the Department Head of the intended change. If the student needs help in finding a new advisor, the student should discuss the matter with the Department Head and Program Chair(s). During the interval, the Department Head will take care of routine administrative matters. The student should be aware that changing advisors might involve additional coursework and will likely involve abandoning the original research and starting on a new project. Moreover, the change will usually delay graduation. In any event, the student must find a new advisor within one semester. However, no faculty member is required to accept a student and serve as the advisor. Failure to find an advisor will result in dismissal from the department's graduate program. If a student's advisor leaves the university, the student does not have to leave the university. The student will be assigned a new advisor. Every effort will be made for the student to continue the original research if significant progress has already been made.

CLASSROOM MANAGEMENT. Teaching Assistants (TAs) are expected to organize and run their laboratories in a professional manner. They should deal fairly and openly with the students. The TA should use time efficiently and establish a pleasant laboratory environment to accomplish the course objectives. Because laboratories are generally less formal than lectures, talking among students is acceptable within bounds. However, radios and other distractions, such as iPods or Nerf basketball hoops, have no place in the laboratory.

COLLECTING PERMITS. Rapid development in Florida has placed heavy demands on its natural resources. Research requiring collection of organisms and environmental sampling should be designed to minimize collection impact as reasonably as is possible, and samples should be processed carefully and adequately to prevent waste. All collections must be made in accordance with legal requirements, including applicable permits and licenses.

COMMITTEES. Many departmental responsibilities are delegated to several standing (permanent) faculty committees. One that most directly relates to graduate students is the Graduate Program Committee.

GRADUATE PROGRAM COMMITTEE (GPC). The functions and responsibilities of the GPC are the following:

1. **Graduate Admissions**

The GPC reviews applicants and makes recommendations for or against acceptance.

2. **Award of Teaching Assistantships (TA):**

The GPC allocates Teaching Assistantships. TAs are awarded based on several factors that include:

- a) Appropriate academic background of student for the course.
Every effort will be made to assign TAs with the most relevant academic background for the course in question.
- b) Academic qualifications of Teaching Assistants.
TAs must have a 3.0 GPA to qualify for a TA.
- c) Language skills.
International students for whom English is not their first language must have adequate verbal skills to be effective in the classroom. Students must score 100 in the iBT, which is the internet-based TOEFL, or Test of English as a Foreign Language; 7.0 on the IELTS exam, or International English Language Testing System; or 600 on the paper-based TOEFL. They also must pass an exam in spoken English: the ITASA, or International Teaching Assistant Speaking Assessment.
- c) Evaluation of teaching effectiveness.
Students receiving unsatisfactory evaluations will not have their Teaching Assistantships renewed.

3. **Academic Standards**

The following areas are the oversight of the GPC:

- a) Recommendations (and periodic evaluation) of Degree Requirements for various programs. Approval requires approval by vote of entire faculty.
- b) Approval of the Student's Committee.
- c) Monitoring student progress through the Student's Committee meeting every semester. Students will not be permitted to register or remain in the graduate program if the student's committee fails to meet each semester.
- d) Evaluation of recommendations for students on academic probation. The committee should monitor students' plans for correcting deficiencies and solicit input from the Faculty Advisor.

GPC Organization

The GPC will be composed of the Program Chairs (currently Drs. Steven Lazarus [chair of GPC] and Ralph Turingan) and three (3) additional members of the faculty. As much as possible, members will represent all areas of interest in the department, including Ocean Engineering, Environmental Science, Oceanography, Meteorology, Aquaculture, Ecology, and Marine Biology.

The three additional members of the GPC will each serve a 3-year term, with one member rotating on and off every year.

COMPLAINTS/GRIEVANCES. The department is concerned about those matters that directly affect the student's academic performance, such as dishonesty, misrepresentation of data, cruelty to animals, or any violation of professional conduct by students or faculty. The student is obliged to inform the GPC Chairperson and Department Head of these infractions. Confidentiality will be honored. In addition, conduct that hampers the progress of other students will not be tolerated. If the student cannot settle the matter privately, then the problem should be discussed with the advisor, GPC Chairperson, and Department Head.

COMPREHENSIVE EXAMINATION. The comprehensive examination consists of a written exam administered to doctoral students by the end of their second year. The student is required to answer two questions, which are prepared and graded by an examination committee. The examination committee is comprised of the student's dissertation committee and must contain a member of the GPC. The GPC administers the examination. See p. 27 for details.

DISMISSAL. A master's student must attain a 3.0 cumulative grade point average (CGPA), and a doctoral student a 3.2 in coursework required for graduation. Failure to attain the minimum CGPA specified below will result in academic dismissal. The advisor has the right to dismiss the student from his/her laboratory for lack of progress or cooperation, or for hampering the academic efforts of other students. See the graduate policies for special requirements pertaining to provisional students.

Master's

<u>Semester Hours Completed</u>	<u>Minimum CGPA</u>
9-17	2.50
18-23	2.70
24 or more	2.90

Doctoral

<u>Status</u>	<u>CGPA</u>
Dismissal	below 3.0
Probation	*3.0<3.2 (after 15 h)
Minimum satisfactory	3.2

*Any student on probation for longer than one semester is subject to dismissal.

Two or more grades of "D", "F", or "U" in any course taken as a graduate student will result in dismissal. A student may also be dismissed for conduct that violates the legal or ethical standards of the university. Examples include cheating, plagiarism, cruelty to animals, falsifying data, and forging or altering transcripts, laboratory notebooks, approval forms, etc.

APPEAL OF DISMISSAL. In all cases of academic dismissal, the GPC Chairperson notifies the student. The academic dismissal may be waived for educationally sound reasons by special action of the Graduate Council. A letter of appeal requesting a waiver of dismissal should be submitted to the Graduate Council through the Department Head. The letter is forwarded to the Appeals Committee of the Graduate Council for careful consideration. Upon filing a letter of

appeal, the student is permitted to enroll in classes until such time that the appeal is resolved. In case of denial of the appeal, the enrollment will be cancelled, and all tuition refunded.

DISSERTATION RESEARCH. Only doctoral students who have been admitted to candidacy are allowed to register for dissertation research. The conditions for admission to candidacy are explained on p. 29. The student must submit a research report every semester (see p. 11) except the last. The last semester the student will satisfy this requirement with the dissertation. Once a student registers for dissertation research, continuous registration is required each semester until completion of the degree. Any exception requires a "[Request to Waive Dissertation or Thesis Registration](#)" form and approval of the GPC Chairperson and the Department Head. An example of this would be if the student were going to be away from campus during the summer and not using any Florida Tech facilities or faculty time.

Once a student registers for dissertation, continuous registration in at least 3 credit hours of dissertation is required each semester until completion of the degree. Any exception to this rule (other than the semester of graduation) requires a Request to Waive Dissertation or Thesis Registration form and approval of the Department Head and GPC Chairperson.

Dissertation registration in the semester of graduation may be for less than 3 hours if the minimum required total number of credits specified for the degree has been met and a full-three-hour registration was completed for the preceding semester. Students who receive a waiver of the requirement to register for the preceding semester, or who did not pass the oral defense of the dissertation during the preceding semester, must register for at least one hour in the semester of graduation, even if they finish prior to the end of the fourth week of the semester. If a student anticipates finishing the dissertation early in the semester, he/she should register for 0, 1, 2 or 3 credits of dissertation until the actual turn-in date according to the following schedule.

Turn-In Date	Credit Hours Required
By noon on the fourth Friday of the semester (not applicable for students obtaining a waiver of the registration requirement for the preceding semester or who did not pass the thesis or dissertation defense during the preceding semester)	0
By noon on the eighth Friday of the semester	1
By noon on the twelfth Friday of the semester	2
Monday after the twelfth Friday of the semester, or later	3

Students who must add credits will not be assessed a late fee. The Graduate Programs Office will take care of adding the appropriate number of dissertation credits on the turn-in date. Students may register for 0 or 3 credits of dissertation. Only the Graduate Programs Office can authorize fewer than 3 credits if it is the semester of graduation and the minimum required number of dissertation credits specified for the degree to be awarded has been met. The turn-in date is defined as the date on which a minimum of 5 completed and signed copies of the dissertation are accepted by the Graduate Programs Office.

GRADES. The university uses a grading system of "A", "B", "C", "D", and "F" for its records, with corresponding quality points of 4, 3, 2, 1, and 0, respectively. There is one exception to this. Prior to the defense, grades of "S" or "U" (depending upon progress) will be assigned to MAR/ENS/OCE/OCN 5999 and MAR/ENS/OCE/OCN 6999. At the time of the actual defense, up to 6 hours of 5999 will be converted to "P" or "F". A grade of "P" carries with it credit hours earned but does not affect the Grade Point Average.

A grade of "Incomplete" is given when extenuating circumstances prevent the student from completing the course requirements within the semester. Such extenuating circumstances include hospitalization, personal tragedy in the family, or some other catastrophe. An "Incomplete" will not usually be given for reasons other than these. An "Incomplete" automatically becomes an "F" if course requirements are not fulfilled before the end of the 6th week of classes of the following semester, although the department may establish an earlier deadline if it chooses.

GRADUATE STUDENT ASSOCIATION. The Association includes all students working towards the M.S. or Ph.D. degree in the DOEMS (p. 17).

GRADUATE STUDENT PROGRESS FORMS. All graduate students must complete the five graduate student progress forms to document their progress in the program. These are intended to assist the student in a smooth and timely manner through required coursework and research responsibilities. Progress forms are available in the DOEMS office and online via the [OEMS Forms and Documents](#) web page. Below is a summary of the progress forms and their intended use.

- Form I. Preliminary Conference. The academic record and career goals of all incoming graduate students are reviewed at a preliminary conference with the advisor. Any course deficiencies or graduate transfer credits are established, and the student is helped to select courses for the first semester. This should be completed within the first few weeks of a student's graduate program.
- Form II. Formation of Thesis or Dissertation Committee. This form records your research committee members. Discuss with your advisor the appropriate individuals from the graduate faculty who can provide constructive input to your research project. This form should be completed by the middle of a student's second semester, normally spring of the first year.
- Form III. Thesis/Dissertation Title and Proposal Approval. This form records the title of your thesis/dissertation research proposal. It is completed and signed by all committee members immediately following your proposal defense meeting. Attach this form to your proposal as the proposal approval page before submission to the GPC.
- Form IV. Admission to Candidacy. This form admits the graduate student to candidacy so that the research portion of the thesis or dissertation can formally begin. It should be completed by the end of the first year of graduate study for master's or by the end of the fifth semester for the Ph.D.

Form V. Approval of Thesis/Dissertation Presentation and Final Exam. This form documents the preparation of the thesis/dissertation, promotes interaction with the advisor and committee members, and insures adequate lead-time for the formal presentation of your research and final exam. This form must be completed in its entirety a minimum of two weeks before the defense date.

TEACHING ASSISTANTSHIPS. Teaching Assistantships are awarded on a competitive basis to highly qualified graduate students who have demonstrated proficiency in English and successfully completed the university training program. TA funding will be assigned based on availability of funds, departmental need for TAs in undergraduate laboratories and academic merit of the applicant. Decisions regarding TA eligibility will be reviewed by GPC. Yearly renewal of assigned TAs will be contingent upon satisfactory progress towards degree goals. Lack of progress and/or failure to maintain satisfactory grades in coursework will result in withdrawal of TA support. A grade below "B" in any course may result in loss of TA support.

For M.S. students, eligibility for TA assignment lasts for the first two years, and M.S. students may not hold a TA beyond those first two years. A M.S. student who receives a TA in the second year of studies may only hold that position for one year. Doctoral students will be eligible to hold TA positions for a maximum of any five years of their graduate careers, but they will be encouraged to obtain research assistantships (with the help of their advisors) to reduce the length of time they are supported by teaching assistantships.

M.S. students who hold a TA and then upgrade to a Ph.D. (which they must do in their first year) do not reset their eligibility clocks. Thus, if a year of TA support has been used in the M.S. phase, upon acceptance into the Ph.D. program the student becomes eligible for four more years of support, for a total of five years of support. If a student fails the comprehensive exam, s/he may complete her/his M.S. degree, but his or her TA will not be continued beyond the semester in which s/he failed the exam.

All TAs are required to attend a departmental safety seminar held in August before the beginning of classes for the year. The seminar covers aspects of safety and chemical-waste disposal related to teaching and research laboratories. Newly appointed TAs are required to attend the University-wide GTA training seminar, also held before the beginning of Fall semester courses. TAs that handle hazardous waste must complete the University's training program on proper disposal.

LETTERS OF RECOMMENDATION. Students often ask their advisors and other faculty members to write letters of recommendation for prospective jobs, for further graduate studies, or for admission to professional schools. Although most faculty members will write letters of recommendation, a faculty member is not required to write a letter and may refuse. Before asking for a recommendation, the student may be asked to sign the waiver on the application of her/his right to access the letter. If the application lacks a waiver statement, special forms are available in the departmental office. A separate waiver is required for each letter. Because the waiver ensures confidentiality, a letter accompanied by a waiver is more highly regarded and trusted than a letter without a waiver. Most faculty members will not write letters without waivers.

LICENSES. For reasons of health, safety, and professional standards, many local, state, and federal agencies and professional societies require licensing for alcohol (Bureau of Alcohol, Tobacco and Firearms), drugs (Drug Enforcement Agency), radioactive isotopes (Nuclear Regulatory Commission and Health and Rehabilitative Services), animal care (U.S. Department of Agriculture and National Institutes of Health), and endangered species (Florida Fish and Wildlife Conservation Commission and U.S. Wildlife Service). Check with your advisor to determine whether you need to be licensed to conduct your research. Failure to comply can result in loss of license for the department or entire university. In addition, the violator (student or faculty member) may be fined, imprisoned, and/or dismissed from the university (see Professional Conduct).

OFFICE HOURS. Faculty keep office hours when they will be available for consultation. Please respect their busy schedules.

OWNERSHIP OF RESEARCH DATA. All data collected for the graduate degree are the property of the Florida Institute of Technology and are administered by the student's advisor on behalf of the University. The student will not graduate until all data have been turned over to the advisor. The student may not present the data at any conference or meeting, nor publish them in any form before or after graduation without the express consent of the advisor.

PERSONAL PROBLEMS. Sometimes the pressures of graduate school, and personal or financial problems weigh heavily on the student. Moreover, certain matters cannot be comfortably discussed with other students, friends, or the advisor. Whatever the reason, the student is urged to avail himself or herself of the free services of the Campus Ministry (674-8045) and Counseling and Psychological Services (CAPS; 674-8050). The student should contact these services directly. They are open 10:00–5:00 weekdays and have 24-hour hotlines. All conversations are confidential and remain a private matter between the student and the chaplain or counselor. If the need arises, the student can request that these services contact the department or advisor in the student's behalf.

PLAGIARISM. Plagiarism, especially intentional plagiarism, is an extremely serious offense. Plagiarism provides substantial grounds for dismissal from the university.

Plagiarism includes, but is not limited to, copying text verbatim from other publications (including, but not limited to, scientific papers, websites, newsletters, newspapers, and magazines) without quotation marks (or block-indentation) and attribution; copying text from other publications and changing a few words without attribution, paraphrasing without attribution, copying images without attribution, copying anything from fellow students in written exams or papers, repeating another person's concepts or ideas in a paper without proper attribution, and submitting papers purchased from websites or other sources.

For further discussion of plagiarism, including additional examples, and additional information on Florida Tech's policy on plagiarism, students are advised to visit the following web site: <http://www.fit.edu/current/documents/plagiarism.pdf>.

PROFESSIONAL CONDUCT. Students and faculty are expected to conform to codes of ethics and conduct established by professionals in their fields. Serious breaches of codes such as fabrication of data and unprofessional conduct will result in dismissal.

Once the student has accepted admission into the program, he/she is subject to the ethics, professional standards and laws relating to her/his area of study. For this reason, the student may not engage in any professional activity (for pay or otherwise) without the appropriate certification and/or approval of the advisor or Department Head. To disregard the need for approval or to engage in activities that seem either unethical or inappropriate will be cause for dismissal from the program. It is further understood that after graduation the student will not engage in any professional activity without appropriate State, Federal, or professional certification, licensure, etc.

PROFESSIONAL SOCIETIES. Most faculty members have joined professional societies in their fields of specialty. Societies are important for professional development, scientific contacts, and employment opportunities. These societies hold meetings at which regular and student members present papers and posters. Some societies are responsible for certification and licensing. Check with your advisor about the one(s) that you should join.

PROGRAM PLAN. The program plan represents the official credit-hour requirements for graduation. Changes in it because of new or canceled courses, change of advisor, etc., require approval by the GPC (see below).

PROGRESS TOWARDS THE DEGREE. Graduate students must demonstrate that they are making progress towards the degree (M.S. or Ph.D.). Students who are not making sufficient progress run the risk of losing graduate assistantships and of being dismissed.

THESIS/DISSERTATION PROPOSAL. The thesis/dissertation proposal serves the purpose of explaining the intended research in sufficient detail for the thesis advisor and thesis committee to ensure that the proposed research meets acceptable scientific standards.

PROPOSAL DEFENSE. The proposal defense is an oral exam administered by the thesis/dissertation committee and emphasizes the proposed research and related research literature.

PUBLICATION OF THESES AND DISSERTATIONS. Publications are professionally important for obtaining employment, promotions, grants and contracts. Although an advanced degree strengthens a person's credentials, a person who has published has additional professional achievement. A thesis/dissertation is considered to be "unpublished" until it appears as a journal article or as a chapter in a book. Graduate students are strongly encouraged to publish as often as the data justify. For practical reasons, graduate students find it easier to write manuscripts from the thesis/dissertation research while in graduate school than after graduation. After graduation, new graduates will typically spend their time searching for jobs or devoting their fullest efforts to doing well at their new jobs.

RESEARCH NOTEBOOK. Each student must maintain a research notebook. The notebook serves as a research diary for writing down the raw data as they are collected. The notebook should always be accessible to the advisor. The student should discuss the form and requirements for a Research Notebook with her/his advisor.

RESEARCH REPORTS. The department offers the following research courses: MAR 5995 Biological Research; MAR/ENS/OCE/OCN 5999 (Marine Biology, Environmental Science, Ocean Engineering, Oceanography) Thesis; ENS/OCE/OCN 6993 (Research in Environmental Science, Ocean Engineering, Oceanography); MAR/ENS/OCE/OCN 6999 (Biological Sciences, Environmental Science, Ocean Engineering, Oceanography) Dissertation. Students must submit research reports to the advisor for each research, thesis, or dissertation course enrolled in no later than the Friday of the last week of classes of the semester. The purpose of this report is to document, for the committee, research progress made during the semester. The advisor should evaluate the report for progress since the last report and for adherence to the research proposal. After the advisor approves and grades the report, it is kept in the department's files. It is not returned to the student.

The report format follows this general outline:

- a. Title page (project title, course number, student's name)
- b. Summary/Abstract
- c. Introduction
- d. Materials and Methods
- e. Results
- f. Discussion
- g. Literature Cited

Pages in the report must be numbered, except for the Title page. It is recommended that students begin learning and applying the instructions for thesis and dissertations (Appendix C) in the preparation of all research reports.

Students enrolled in MAR/ENS/OCE/OCN 5999 or MAR/ENS/OCE/OCN 6999 should append a short description to the research report that documents the progress made over the semester to help the advisor track progress towards the degree.

Any committee member may request a meeting with the student if a problem with the research surfaces. The student is advised to "use" her/his committee and should schedule meetings with individuals or the entire committee whenever a problem arises or when the student deems it necessary.

RESEARCH SEMINAR AND DEFENSE. All students must present a research seminar for either their thesis or dissertation research to fulfill their graduation requirement. Students should register for Research Seminar (MAR/OCE/OCN 5990, ENS 5000, 0 credit-hours) in the semester they intend to graduate. Ph.D. in Biological Sciences students will add/drop to MAR 5991 (1 credit-hour) at the time the student presents the seminar.

SEMINARS. Students are required to attend all departmental seminars. Regularly scheduled departmental seminars are held every Wednesday; times are posted. In addition, unscheduled seminars are held periodically.

STUDENT ACTIVITIES.

Graduate Student Association. All students working toward the M.S. or Ph.D. degrees in the Department of Ocean Engineering and Marine Sciences are members of the Graduate Student Association (GSA). Regular meeting attendance and participation in GSA-sponsored events is encouraged and expected of all graduate students. The primary functions of the GSA are to organize and sponsor a seminar or workshop series on various topics selected by graduate students; to facilitate communication among graduate students, faculty, and administration; to provide information and tours to prospective or incoming students in the Department of Ocean Engineering and Marine Sciences; and to provide a forum where proposals, seminars, and research ideas may be presented and discussed.

Professional and honor societies relevant to our various majors include, but are not limited to Sigma Xi, Phi Kappa Phi (PKP), the American Meteorological Society (AMS), the American Geophysical Union (AGU), the Society for Naval Architects and Marine Engineers (SNAME), the Marine Technology Society (MTS), Society for Integrative and Comparative Biology (SICB) and Tri-Beta. Sigma Xi is the national scientific research society, whereas Phi Kappa is a national multi-disciplinary honor society. Tri-Beta is the national biology honor society, and the AMS and AGU are professional organizations for meteorologists and geoscientists respectively. All of these societies and organizations offer scholarships and more. Information is available online at the links provided. Local-chapter information is available via Panther Prowl.

TELEPHONE. Students may not use faculty or office telephones for making long-distance calls unless they receive prior permission from either their Department Head or advisor. Students or their friends should not ask the departmental administrators to take messages except in emergencies or for official business. Private calls should be made from private phones.

THESIS/DISSERTATION COMMITTEE. The thesis/dissertation committee is responsible for monitoring the student's progress, supervising the student's research, and ultimately certifying to the Graduate Programs Office that an acceptable thesis or dissertation has been submitted and all degree requirements are completed. For the master's degree, there are at least three members and for the doctoral degree, five members. The GPC must approve the composition of the committee for balance and uniformity.

THESIS RESEARCH (MAR/ENS/OCE/OCN 5999). The student must have at least a 3.0 CGPA in formal coursework and an approved thesis proposal on file before registering for thesis research. The student must submit a research report to the advisor every semester except the last, for which the thesis satisfies the report requirement. Once a student registers for thesis research, continuous registration is required each semester until completion of the degree. Any exception requires a "Request to Waive Dissertation or Thesis Registration" form and approval of the GPC Chairperson and the Department Head. An example of this would be if the student were going to be away from campus during the summer and not using any Florida Tech facilities or faculty time.

THESIS/DISSERTATION DEFENSE. Defense of the thesis/dissertation consists of a seminar at which the student presents his/her research, followed by an oral exam conducted by the student's committee.

DEGREE PROGRAMS

The Department of Ocean Engineering and Marine Sciences offers opportunities for advanced study and research leading to the Master of Science and the Doctor of Philosophy degrees in biological, meteorological¹, environmental, and ocean sciences, and ocean engineering. The master's or Ph.D. degree is awarded to candidates who have 1) displayed an in-depth understanding of the subject matter and 2) demonstrated the ability to make original contributions to knowledge in their fields of specialty.

ORGANIZATION AND ADMINISTRATION OF THE GRADUATE PROGRAM

The graduate program in the Department of Ocean Engineering and Marine Sciences is administered through the Graduate Program Committee (GPC). The GPC recommends admission of students into the program, sets degree requirements, and recommends students for admission to candidacy for the M.S. and Ph.D. degrees. Once the student is advanced to candidacy, the thesis or dissertation committee, chaired by the student's thesis or dissertation advisor, has the responsibility of monitoring the student's progress through the program in a timely manner.

The Staff Assistant is the person who actually does a lot of the work and knows the specifics of where the students stand in their program. The Staff Assistant keeps the records on students and sees that paper is processed in a correct and timely manner. Most questions concerning routine procedures should be addressed to the Staff Assistant.

The following individuals currently administer the Department of Ocean Engineering and Marine Sciences graduate program:

GRADUATE PROGRAM COMMITTEE.

Dr. Steven M. Lazarus, Chairperson
 Dr. Ralph G. Turingan
 Dr. Charles R. Bostater
 Dr. Robert J. Weaver
 Dr. Andrew G. Palmer

Staff Assistants to Whom you Should Really Listen

Ms. Dee Dee Van Horn (dvanhorn@fit.edu)
 Ms. Lisa Dubenion (ldubenio@fit.edu)

¹ A Doctorate is possible through Environmental Science.

FULL-TIME ACADEMIC FACULTY, DEPARTMENT OF OCEAN ENGINEERING AND MARINE SCIENCES.

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Climate Change
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Remote Sensing
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Water Quality Instrumentation
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Paleoecology
Creation and Restoration of Coastal Wetlands
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Toby S. Daly-Engel, Ph.D.
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Molecular ecology of sharks, rays, and other fishes
Evolution of high-investment reproductive strategies
Speciation, dispersal, and genetics of marine organisms
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Cycling of Trace Metals and Nutrients in Oceans, Estuaries and Rivers
Mercury Concentrations in Predatory Biota
Nutrient Loading and Algal Blooms
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Effects of harmful algal blooms on marine megafauna
Trophic transfer of toxins in marine food webs
Biological Oceanography/Marine Mammalogy/Toxicology
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Kelli Z. Hunsucker, Ph.D.

Assistant Professor

Biofouling Organisms and Settlement on Anthropogenic Structures.

Efficacy of Hull Coatings in Preventing Biofouling

Growth of Benthic Organisms to Create Living Docks

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Kevin B. Johnson, Ph.D.

Professor

Biological and Ecosystem Recovery of Restored Habitats

Marine and Larval Ecology

Harmful Algal Blooms

johnson@fit.edu

Kenyon C. Lindeman, Ph.D.

Professor

Sustainable Coastal Management

Biophysical Oceanography

Marine Protected Areas

lindeman@fit.edu

Steven M. Lazarus, Ph.D.

Professor and Program Chair

Winds, Setup and Waves in Limited Fetch Estuaries

Lightning and Gigantic Jets

Mesoscale Data Assimilation and Analysis

slazarus@fit.edu

George A. Maul, Ph.D.

Professor

Coastal Climate and Sea-Level Change

Tsunamis

Coastal Ocean Observing Systems

gmaul@fit.edu

Andrew G. Palmer, Ph.D.

Associate Professor

Biology of host/pathogen interactions

Cell signaling following plant-pathogen interactions

Chemical Biology/Plant Biology/Biochemistry

apalmer@fit.edu

John G. Morris, Ph.D.

Associate Professor Emeritus

Population Ecology of Vertebrates

Habitat Analysis of Rare, Threatened, and Endangered Species of Florida

Biology of Marine Mammals

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Optimum Design of High-Speed Craft
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Nontoxic Antifouling Coatings
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Marine Pollution Programs and Offshore Oil Activities
Chemistry of Hydrothermal Vents
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Ecological Morphology of Feeding Systems
Evolution of Organismal Design in vertebrates
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 Reproduction and Ecology of the Florida Applesnail
 Physiological Ecology of Crustaceans
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 Circulation Modeling for Estuarine and Coastal Waters
 Remediation of Coastal Lagoons
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 Coral Reef Community Structure and Diversity
 Marine and Coastal Habitat Management
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 Analysis of Trace Levels of Organic Compounds in the Environment
 Transport of Organic Chemicals in the Marine and Atmospheric Environment
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 Design of Underwater Vehicles
 Underwater Archaeology
 Renewable Ocean Energy Technologies
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Gary A. Zarillo, Ph.D.
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 Sediment Transport in Estuarine Environments
 Hydraulics of Tidal Inlets
 Marine Geology
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DEGREE REQUIREMENTS AND PROCEDURES

DEGREES OFFERED. There are several graduate degrees offered through the Department of Ocean Engineering and Marine Sciences: the Ph.D. and M.S. in Biological Sciences, the M.S. in Conservation Technology, the M.S. in Earth Remote Sensing, the M.S. in

Environmental Resource Management, the M.S. and Ph.D. in Environmental Science, the M.S. in Meteorology, the M.S. and Ph.D. in Ocean Engineering, and the M.S. and Ph.D. in Oceanography. Both the Ph.D. and M.S. in Biological Sciences require the preparation and defense of a thesis or dissertation. Conservation Technology is a non-thesis master's degree. A non-thesis M.S. option is also available in Ocean Engineering, Oceanography, Environmental Science, and Meteorology. This option requires three additional courses for a total of 33 credits, and a final program examination that consists of a written report and an oral presentation/examination. In addition, the M.S. in Environmental Resource Management, and Oceanography-Coastal Zone Management have a 30-credit internship option in lieu of a thesis. For more information on these non-thesis options see the OEMS [Forms and Documents](#) web page.

Enrollment in OEMS Seminar (MAR/OCE/OCN 5990, ENS 5000) is required each semester. Exceptions may be made for students unable to attend seminar on a regular basis due either to course work, obligations of a teaching assistantship, or the necessity of residence in a remote location to conduct research. The designated instructor for the seminar course or the Department Head must approve requests not to register for seminar. The student must present a public research seminar during the final semester of their program.

MASTER OF SCIENCE. The Master of Science degree requires the successful completion of at least 30 semester-hours of graduate credit, which must be approved by the GPC. This total may include up to 6 hours of approved 4000-level undergraduate coursework. The student must complete up to 6 hours of Thesis (MAR/ENS/OCE/OCN 5999). Once started, continuous enrollment in 3 semester-hours of thesis is required until all requirements for the degree are satisfied, but only 6 semester-hours may be applied to the degree.

The following MS degrees are available within OEMS. Brief descriptions are provided at the following links.

[MASTER OF SCIENCE IN CONSERVATION TECHNOLOGY.](#)

[MASTER OF SCIENCE IN METEOROLOGY.](#)

[MASTER OF SCIENCE IN EARTH REMOTE SENSING.](#)

[MASTER OF SCIENCE IN ENVIRONMENTAL RESOURCE MANAGEMENT.](#)

[MASTER OF SCIENCE IN ENVIRONMENTAL SCIENCE.](#)

[MASTER OF SCIENCE IN OCEAN ENGINEERING.](#)

[MASTER OF SCIENCE IN OCEANOGRAPHY.](#)

[MASTER OF SCIENCE IN ECOLOGY.](#)

[MASTER OF SCIENCE IN MARINE BIOLOGY](#)

PROCEDURES

Transfer of Credits. Students matriculating with a B.S. or B.A. degree may receive up to 12 semester-hours of transfer credit, provided the courses are eligible for graduate credit at the institution where they were taken and they were not used to complete requirements for the undergraduate degree. Classes taken at Florida Tech or other universities are not eligible for transfer credit if a grade of "C" or lower was earned.

All transfer credit to be applied to the M.S. programs must have been earned within 7 years immediately preceding the date of matriculation into the program. Exceptions may be approved upon the recommendation of the thesis advisor and with the approval of the GPC and the Graduate Council.

Selection of Thesis or Dissertation Advisor. The thesis or dissertation advisor must be a member of the Graduate Faculty; students may do their research with Associate Graduate Faculty in the Department under the supervision of a member of the Graduate Faculty. New graduate students must have selected or been assigned an advisor and been accepted into a laboratory before coming to Florida Tech. Only students with advisors are permitted to register for courses. The thesis/dissertation advisor serves as the chair of the thesis/dissertation committee.

Program Plan. The student and his/her thesis/dissertation advisor construct and submit a Program Plan to the GPC for review and approval. The Program Plan includes the name of the advisor and a list of all courses to be counted toward the M.S./Ph.D. (the form is [here](#); also see Appendices B and C for specific courses for Marine Biology, Ecology and Conservation Biology). Each graduate student is required to have an approved program plan on file no later than one month prior to completion of nine credit-hours of graduate coursework. Failure to submit the program plan on time will result in a "hold" being placed on the student's registration. See section [1.3.1](#) of the Graduate Program's Policies and Procedures.

Students should pursue the Program Plan in their degree areas. Each Program Plan consists of four parts: (1) Core Curriculum (required of all students in that program); (2) Seminars; (3) Electives; and (4) Research and Thesis/Dissertation. Students must have the undergraduate training for any core courses they select; otherwise they must take those courses as deficiencies, as prescribed in their admission letters, by their advisors, or by their committees. Core courses are essential to the discipline being studied by the student and should not be considered deficiencies.

Full-Time Status. Eligibility for scholarships and student loans often requires the recipient to be a full-time student at Florida Tech. To be considered full-time, a graduate student must be enrolled for 9 credits of formal course work. When students register for a research course, the university's expectation is that they will work full time toward completion of their degree. Therefore, a 3-credit-hour registration in a research course constitutes full-time status. For a list of applicable courses, see [Full Load Courses](#).

Admission to Candidacy. A graduate student becomes a Degree Candidate by satisfying the following requirements:

1. Removal of all specified course deficiencies
2. Completion of at least nine hours of graduate courses in good standing (as described by the academic dismissal regulations of the Graduate School)
3. Approval of a Program Plan by the GPC
4. Completed forms providing evidence of two committee meetings per year.
5. Successful defense and subsequent acceptance of a thesis or dissertation proposal.

The student then completes Progress Form "IV. Admission to Candidacy" (see Appendix A).

Thesis Committee. The thesis committee has the responsibility for general supervision of the student's research and ultimately of certifying to the Graduate Programs Office that an acceptable thesis has been submitted and that all degree requirements are completed. Although the thesis advisor provides day-to-day guidance to the student, all members of the committee are available for consultation, and the student should feel free to ask for advice. The thesis committee also has the general responsibility for monitoring the student's progress.

The thesis committee consists of a minimum of three members: two from the graduate faculty of the Ocean Engineering and Marine Sciences Department (of which at least one must be a full-time faculty member) and one a full-time graduate faculty member from another degree-granting department. Associate Graduate Faculty from the Florida Fish and Wildlife Conservation Commission, Harbor Branch Oceanographic Institution, and the Smithsonian Marine Station at Fort Pierce can serve as members but not chairs of committees. As members of the Department of Ocean Engineering and Marine Sciences, Associate Graduate Faculty cannot serve as outside members. Students should complete and submit Progress Form "II. Formation of Thesis or Dissertation Committee" (see Appendix A).

Changes to the committee, after the thesis proposal has been approved and accepted, are not permitted except under extraordinary personal or professional circumstances, which are deemed as such by the GPC and the Department Head. If personal or professional considerations suggest that such action would be in the best interest of the student, the committee members, or the university, any committee member (including the advisor/committee chair) may voluntarily withdraw from the committee by notifying in writing the committee chair, the Department Head, and the Dean of the College. The student will not be permitted to register for more than one additional semester following withdrawal of a committee-member unless a full committee is re-established. To re-establish the committee, the chair nominates a new committee member in writing to the GPC and the Department Head for approval. A memorandum and the appropriate forms are sent by the Department Head to the Dean, who forwards his recommendation to the Office of Graduate Programs.

Replacement of a member of the committee for any reason other than voluntary withdrawal is permitted after review and approval by the GPC and the Department Head of a written request from the student or the advisor for such action. Such requests are forwarded by the Department Head and follow the same approval route as voluntary withdrawals. Forced replacement of a committee member is allowable only in cases of personal, non-academic incompatibility.

Thesis Research Proposal. The thesis proposal serves the purpose of explaining the intended research in detail for the thesis advisor and thesis committee to ensure that the proposed research meets acceptable scientific standards. The thesis committee will evaluate the scope, experimental design, statistical methods, originality, feasibility, and significance of the research. If the research direction or emphasis changes significantly, the student must file an amendment to the proposal or rewrite the proposal. In either case, the entire thesis committee must review and approve the amended or new proposal.

The proposal follows the general format described below:

- a. Title page (project title, course number, student's name)
- b. Introduction, including a review of the literature
- c. Description of the goals of the proposed research
- d. Hypotheses to be tested
- e. Materials and methods
- f. Projected collection and analysis of results
- g. Time line
- h. Budget
- i. References in full bibliographic form

Once the proposal is acceptable to the advisor, the student should distribute copies of the proposal to the thesis committee and schedule a Proposal Defense at least two weeks later.

Proposal Defense. The proposal defense is a research-oriented oral exam that emphasizes the proposed research and related research literature. The thesis committee's responsibility is to evaluate the intellectual preparedness of the student and the scientific merit of the proposed research, and to ensure that appropriate facilities, expertise and resources are available to successfully conduct the research. A timetable of milestones is also discussed. When the oral exam is successfully completed, and the thesis proposal has been approved by the thesis committee, a signed copy of Progress Form "III. Thesis/Dissertation Title and Proposal Approval" (see Appendix A) is attached to the proposal as the approval page. After approval of the proposal, a student may then register for thesis research (MAR/ENS/OCE/OCN 5999), providing the GPA for formal coursework is 3.0 or greater.

Progress Toward the Degree. All students are expected to make reasonable progress toward the degree. Once the thesis proposal is filed and research begins in earnest, a committee meeting and a research report are required each semester until graduation, describing methodologies used, data collected, problems encountered, and plans for the following semester. The report is distributed to the thesis advisor for review. Any member of the committee may request a meeting with the student for purpose of further discussing the report. A copy of the graded report (S or U) is forwarded to the GPC and becomes part of the student's permanent file. This evaluation process must be completed, and the report forwarded to the GPC by the Friday of finals week.

If satisfactory progress has not been made (a grade of U) or the thesis is not completed within two years of submitting the thesis proposal, the results of a review by the thesis committee will be presented with recommendations to the GPC. The GPC will decide what

actions, if any, are required and may transmit its recommendations through the Department Head to the Graduate Programs Office.

Thesis Research. Students should pursue research vigorously and in constant consultation with the advisor. The research should be original and significant. During the period of thesis research, the student should meet at least once per semester with the thesis committee together, or with the members separately, to discuss progress. The student, advisor and committee will decide on the frequency and format of such meetings.

Students who are engaged in thesis work must continuously register for 3 semester-hours of MAR/ENS/OCE/OCN 5999 each semester until graduation. For each thesis course, the student will receive a grade of either S (satisfactory progress) or a U (unsatisfactory progress). U grades will not be changed and will remain on the transcript, but they will not be used in computing the student's cumulative grade point average. When the thesis is accepted, 6 credits of "S" grades will be assigned P (Pass) as determined by the unanimous approval of the thesis committee.

Preparation of Thesis. Great care should be taken in the preparation of the thesis. The writing should be clear and grammatically correct. Methods, results, and conclusions should be described thoroughly. Data should be analyzed carefully as to significance. The thesis should be written on a computer/word processor and printed with a laser printer or other high-quality printer.

Preliminary copies of the thesis should be submitted to the committee at least four weeks in advance of the proposed date of the final oral examination. The candidate may not defend the thesis until it is generally acceptable to each committee member, prior to the scheduling of the seminar and final oral examination. Thus, the student and advisor must discuss the corrections and revisions to the thesis with each committee member to determine whether the thesis is ready for the defense. Under no circumstances will the exigencies of forthcoming employment or other personal circumstances shorten the thorough and critical appraisal of the thesis by the thesis committee.

Master's Thesis Examination. When the thesis is nearly in its final form, it is approved by the thesis advisor for circulation to the thesis committee. The thesis committee must receive the complete thesis four weeks before the anticipated defense date. The student should consult with the thesis committee about the content and make changes and corrections in a timely fashion. When all members of the committee agree that the thesis is ready to be defended (i.e., the thesis meets the committee's requirements as to form and substance), the thesis defense may be scheduled. Two forms must be submitted to schedule the final thesis defense. First, a completed Progress Form "V Approval for Thesis/Dissertation Presentation and Final Exam" (see Appendix A) is submitted to the GPC early enough that the Graduate Program's two-week deadline for final exam announcements can be met. Form V is also required to schedule the research seminar. Once Form V is approved, the "Notice of Thesis or Dissertation Defense and Oral Examination" form (see Appendix A) is prepared by a departmental administrator, signed by the Department Head, and submitted to the Graduate School. This form must be in the Graduate School Office a minimum of two weeks prior to the exam.

The master's examination is a defense of the thesis consisting of two parts: a seminar and a final oral exam. The first is a public seminar that is open to all faculty and students. The candidate and thesis advisor together are responsible for scheduling the seminar with the seminar coordinator for the semester during which the seminar is going to be given. At the seminar, the student presents his/her research and fields questions and comments from the audience. The second part of the defense, the final oral exam, is scheduled for a date or time following the seminar. The student meets privately with the thesis committee and any graduate faculty who wish to attend. The student fields any questions or suggestions on the research that the faculty may have about the completeness of the thesis. The student may be asked to make additional corrections to the written thesis. Once the thesis committee unanimously approves the outcome of the examination, and the document itself, the advisor submits form to the Department Head.

After successfully defending the thesis, the student must prepare the thesis in final form and submit it to the thesis committee and the Department Head for final approval and signing. The Department Head should receive the thesis at least three days before the end of the semester. The Department Head then submits the Master's Examination Report to the Graduate Programs Office, notifying them of the successful completion of the exam and that all degree requirements have been met. The Department Head also then signs the signature page of the thesis. Instructions for submitting the completed thesis are available from the Graduate Programs Office.

If the student fails the thesis examination (i.e., if the committee is not unanimous in its opinion of the thesis or the student's performance), the exam must be retaken after a reasonable length of time has been spent in preparing for re-examination. The thesis committee decides what constitutes a reasonable length of time, given that the re-examination must be conducted within three months of the initial exam. The student's thesis committee will determine the form that the re-examination will take, which will depend on the extent of failure. Failure of the re-examination will result in dismissal from the program.

Student Progress Forms. The student will receive a packet of student progress forms at his/her first meeting with the thesis advisor. There are five forms that track the student's progress towards the master's degree:

- I. Preliminary Conference
- II. Formation of Thesis or Dissertation Committee
- III. Thesis/Dissertation Title and Proposal Approval
- IV. Admission to Candidacy
- V. Approval for Thesis/Dissertation Presentation and Final Exam

Each form must be completed and approved by the GPC in sequence.

Recommended Sequence for Completion of M.S. Requirements. The following list summarizes landmarks of progress that should be followed as closely as possible.

1. Select thesis advisor (or have one assigned) and be accepted into a research laboratory.
2. Arrive at Florida Tech.
3. Meet with thesis advisor for preliminary conference, selection of courses for the first semester of study, and completion of Progress Form I; submit to GPC.

4. Prepare and submit a Program Plan to GPC for approval.
5. Complete Progress Form II and submit to GPC.
6. Select thesis committee and submit Progress Form III to GPC for approval. Form III includes a title and brief description of proposed research.
7. Prepare thesis proposal and defend before the thesis committee. Submit Progress Form IV with approved proposal to GPC.
8. Complete classes.
9. Complete research.
10. Prepare and complete thesis.
11. Obtain approval of thesis advisor to distribute thesis to committee.
12. Schedule seminar and final examination with the Graduate School.
13. Obtain approval of the thesis committee and Department Head of thesis in final form.
14. Submit at least two (2) copies of the completed and approved thesis to the Graduate Program's Office. Please consult with your advisor for any needed extra copies.
15. Check out from advisor's laboratory, departmental office and the stockroom; thesis advisor will notify GPC that all data have been submitted and equipment returned.

FINAL PROGRAM EXAM FOR M.S. CONSERVATION TECHNOLOGY STUDENTS

A Final Program Examination (FPE) is required for all students in M.S. Conservation Technology. As of the fall 2017 semester, students who intend to take the FPE need to formally register for the appropriate course (MAR 0002). This will assure that students who have completed all of their course work prior to the exam are still registered and able to maintain their student status. It will also permit the monitoring of student payment for the exam (if appropriate) as well as provide the ability to generate statistics about success rates for students taking the FPE.

Students will register online. The Registrar's Office will run a list of students registered in each FPE course, which will be shared with the Department. Students who do not have at least a 3.0 overall grade point average will be informed that they are not eligible to take the exam. Once the exam is completed, grades for the exam will be entered. The grading mode will be pass/fail but will not result in academic sanctions, nor will grades be recorded on the academic transcript except as provided by Graduate Policy 1.6.5. Students who are not registered for any other course except the FPE course will be charged the final program examination fee in compliance with Graduate Policy 1.6.4.

ENVIRONMENTAL RESOURCE MANAGEMENT INTERNSHIP/COASTAL ZONE MANAGEMENT INTERNSHIP. See the OEMS [Forms and Documents](#) web page for details.

TRANSFER FROM MASTER'S TO PH.D. PROGRAM. Any current Master's student wishing to upgrade to the Ph.D. must fulfill several conditions. 1) the MS student must reapply to the department for a place in the Ph.D. program; 2) the student's advisor must send a supportive letter to the GPC stating that the transfer is unanimously supported by the thesis committee and that the student has been fully counseled on the repercussions of the switch to the Ph.D. program. 3) the student must have demonstrated sufficient progress that s/he would have completed the MS degree in a timely manner and with superior academic performance as determined by the GPC; 4) the student's transfer must be approved by the GPC; 5) the upgraded student must then pass the doctoral qualifying exam within the appropriate time for a doctoral student beginning a program coincidentally with the start date of the student's master's program (window opens third semester and closes at end of fifth semester). Master's students contemplating transferring to the Ph.D. program must do so by the end of the first academic year of their master's programs, otherwise, the comprehensive exam deadlines will be missed. It is recommended that a student complete the Master's program before making the transfer if there is a danger of missing examination deadlines.

One repercussion of transferring from a master's program to a doctoral program is that the two years of eligibility for a TA will be extended to a total five years. That five-year eligibility will include any 'time served' as a TA while in a M.S. program.

DOCTOR OF PHILOSOPHY The purpose of the Ph.D. program is to train students for careers in research and teaching at the highest levels. Demonstration that the candidate has achieved the appropriate level of knowledge is the submission of a dissertation, which should be a major contribution in the field. The dissertation must indicate not only that the individual has a mature understanding of the particular field but also that they can design and execute original studies.

The Department of Ocean Engineering and Marine Sciences offers opportunities for advanced study and research leading to the Doctor of Philosophy degrees in Biological Sciences, Environmental Science, Oceanography, and Ocean Engineering. The Ph.D. degree is awarded to candidates who have 1) displayed an in-depth understanding of the subject matter and 2) demonstrated the ability to make an original contribution to knowledge in their fields of specialty.

All prospective doctoral students must have a B.A. or a B.S. from an accredited university and a minimum GPA of 3.0 in all undergraduate coursework. An applicant with a graduate degree must have a minimum GPA of 3.2 for all graduate coursework. Entering students should have verbal and quantitative GRE scores of no less than 500 in the old scoring system, or 153 and 144 on the current scale. Exceptions can be made in cases with strong justification (e.g., high GPA and/or extensive research experience). Applicants whose native language is not English must score at least 550 on the paper-based TOEFL.

Course Requirements.

The doctoral degree requirements, which vary depending on the program, range from a total of 72 to 78 semester credit-hours beyond the baccalaureate degree, including up to 24

credit-hours of formal coursework and a minimum of 24 research (MAR 5995, ENS/OCE/OCN 6993) and dissertation credit-hours (MAR/ENS/OCE/OCN 6999)². Seminar (MAR/OCE/OCN 5990 and ENS 5000, 0 credit-hours) is required each semester. For Biological Sciences, Research Seminar (MAR 5991, 1 credit-hour) is required during the graduation semester. Courses that are considered deficiencies in a student's prior education cannot be used in fulfilling the requirements for a graduate degree; they should be identified on the program plan as deficiencies and taken above and beyond the requirements for the degree. For specific information on the doctoral degree requirements, visit the links provided below.

- [Biological Sciences](#), Ph.D.
- [Environmental Science](#), Ph.D.
- [Ocean Engineering](#), Ph.D.
- [Oceanography](#), Ph.D.

At least 12 credit-hours of coursework and all of the research/dissertation credits must be taken at Florida Tech. At least 15 credit-hours of dissertation must be taken beginning in the semester during which the student is admitted to candidacy. Students matriculating with a master's degree may transfer up to 30 credit-hours, provided the courses are comparable to core and elective courses. A grade lower than "B" in any transferred graduate course will not be counted toward the required number of hours. Thesis and research courses cannot be transferred toward the Ph.D. degree.

Program Plan. Students pursue program plans in their fields of interest. Each program plan consists of four parts: (1) Core Curriculum (required of all students in that program); (2) Colloquia and Seminars; (3) Electives; and (4) Research and Dissertation. A signed and approved program plan must be submitted to the Registrar's Office no later than 1 month prior to the time nine credit-hours of graduate course work have been completed. See Graduate Policies and at <https://policy.fit.edu/Graduate-Policies>. Students should consult with their advisor and reference the catalog for relevant coursework to populate their individual program plans.

Dissertation Committee. The committee consists of five graduate faculty. Four must be from within the student's doctoral program, with at least three of the four being full-time faculty on the Melbourne campus. The committee chair, who is one of the four 'inside' members, must be a full-time member of the Graduate Faculty. The fifth member of the committee is the 'outside' member.

The outside member is a full-time member of the Graduate Faculty who is not in the program in which the doctoral student is registered. Thus, a student in the doctoral program in Biological Sciences can have as her/his outside member one of the faculty in Oceanography, but no faculty in Oceanography may serve as an inside member. The role of the outside member is 1) to serve as a representative of the university to ensure that the rules of the university are followed, 2) to serve as an advocate for the student regarding committee proceedings, and 3) if possible, to provide an additional level of research expertise and perspective from outside the student's program.

² With approval, the formal coursework may include up to 6 credit-hours of 4000-level undergraduate courses.

If desired, 'additional' committee members are permitted to serve on a graduate committee, based on their appropriate research expertise and willingness to assist the student. Additional members may be solicited from any academic or industrial institution as deemed appropriate by the student in consultation with his/her advisor. Additional members are not permitted to vote on any decision the committee makes regarding the student's program plan, dissertation, or other requirements for graduation. They are invited to attend all meetings concerning the student's advancement, although their attendance is not required.

Committee members are selected in consultation with the dissertation advisor and with approval of GPC. The dissertation advisor chairs the committee. The dissertation committee has responsibility for supervising the student's research and ultimately for certifying to the graduate dean that an acceptable dissertation has been submitted and that all degree requirements are completed. Although the dissertation advisor provides day-to-day guidance to the student, all members of the committee are available for consultation, and the student should feel free to ask for advice. The dissertation committee also has general responsibility for monitoring the student's progress.

Changes in Committee. After the student has advanced to candidacy (passed the comprehensive examination and submitted an approved dissertation proposal), changes in the composition of the doctoral committee will be permitted only under extraordinary circumstances. If personal or professional considerations suggest that such action would be in the best interest of the student, the committee members, or the university, any committee member (including the advisor/committee chair) may voluntarily withdraw from the committee by notifying in writing the committee chair, the Department Head, and the Dean of the College. The student will not be permitted to register for more than one additional semester following withdrawal of a committee-member unless a full committee is re-established. To re-establish the committee, the chair nominates a new committee member in writing to the GPC and the Department Head for approval. A memorandum and the appropriate forms are sent by the Department Head to the Dean, who forwards his recommendation to the Office of Graduate Programs.

Replacement of a member of the committee for any reason other than voluntary withdrawal is permitted after review and approval by the GPC and the Department Head of a written request from the student or the advisor for such action. Such requests are forwarded by the Department Head and follow the same approval route as voluntary withdrawals. Forced replacement of a committee member is allowable only in cases of personal, non-academic incompatibility.

Comprehensive Examination. The Department of Ocean Engineering and Marine Sciences requires that each doctoral student pass a comprehensive examination administered by an examination Committee. The purpose of the comprehensive examination is to determine the student knowledge base within the chosen area of expertise and to evaluate the ability of the student to pursue independent research by answering written questions within their area of expertise. A student should complete the comprehensive examination by the end of his/her second year. Without exception, it must be completed by 2.5 years after starting the program as a regular graduate student.

Request to Take Comprehensive Examination. The request to take the comprehensive examination is made in writing (see OEMS [Forms and Documents](#)) to the GPC during the first

week of the semester in which the exam is to be administered. The student, doctoral advisor, and committee must sign this request. Student must be in good academic standing and have completed more than 80% of all formal coursework in the program plan at the time of the request.

Examination Committee. The examination committee is comprised of the student's doctoral committee. A GPC member will be assigned to the examination committee if no other committee member, who is not the Chair, is a member of the GPC. The committee will abide by GRADUATE POLICY 2.4.1 Committee Participation (see below).

Administration of the Examination. The GPC, as represented by a departmental program chair, administers the examination. The responsibility of the administrator will be as follows.

- 1) Coordinate with the examination committee to administer the examination.
- 2) Collect the questions from the committee chair and furnish them to the student.
- 3) Collect the graded exams from the faculty and ensure that a written evaluation accompanies each graded examination.
- 4) File an examination report with the Department Head.
- 5) Notify the student and advisor, in a timely fashion and in writing, of the results of the examination.

Examination Structure. Students will be given two questions, which are developed by the student's doctoral committee with input from any interested Ocean Engineering and Marine Sciences faculty. One of the questions will test a basic core of knowledge within the student's general area of study. The second question will be tailored more specifically to the student's specific field of interest. The student will have two weeks to write answers to the questions. Each question will be graded by the members of the doctoral committee. To pass, the student must have the unanimous approval of the committee, including the outside member (see [Graduate Policy 2.4.3](#)). If the student fails, s/he can retake the examination the following semester. Students will be advised following a failure to help them prepare for the retake. If the student fails the examination a second time, s/he will be expelled from the program.

Here is a timeline to be followed by all students taking the exam in a particular semester.

- 1) Week 1 of the semester: student applies to take the exam.
- 2) Weeks 2–3: the committee drafts questions.
- 3) Week 4: the student receives the questions.
- 4) Week 6: the student submits written answers to the questions.
- 5) Week 8: members of the committee return graded exams with written comments.
- 6) Week 9: student is informed in writing of the outcome, pass or fail.

For details on the Graduate Policies related to Comprehensive Examinations see [Graduate Policy 2.4](#).

Dissertation Proposal. After the comprehensive examination is passed, the student composes a written dissertation proposal. The proposal should follow the format in Appendix C. When the proposal is complete (and consultation with the advisor on this matter is strongly recommended), the student submits it to the advisor and the doctoral committee and schedules a proposal defense with the committee at least two weeks later.

The proposal defense is a research-oriented, oral examination that emphasizes the proposed dissertation research and related issues. The committee's responsibility is to evaluate the intellectual preparedness of the student for admission to candidacy and the scientific merit of the proposed research, and to ensure that appropriate facilities, expertise and resources are available to conduct the research successfully. A timetable of milestones is also discussed. When the oral defense is successfully completed, and the dissertation committee has approved the dissertation, the advisor will attach a signed Progress Form III to the proposal as its approval page and forward the proposal to the GPC for inclusion in the student's file.

Foreign Language Requirement. The Department of Ocean Engineering and Marine Sciences does not require evidence of competence in a foreign language but strongly recommends that candidates acquire reading ability in at least one language other than English.

Admission to Candidacy for the Ph.D. Once the dissertation proposal is approved, the student applies for admission to candidacy for the doctoral degree. The advisor must complete Progress Form "IV. Admission to Candidacy" and send it to the GPC for approval. A cumulative GPA of 3.2 is required for admission to candidacy.

After admission to candidacy, students must register for MAR/ENS/OCN/OCE 6999 (Dissertation). Continuous enrollment in at least 3 credits of dissertation each semester, including summer, is required until graduation.

Dissertation Research. The doctoral research should represent a significant contribution to knowledge in the field and should be of such quality that it will be acceptable for publication in a national or international, peer-reviewed scientific journal. During the period of dissertation research, the student should meet frequently with the dissertation advisor to discuss dissertation progress. A meeting with the doctoral committee is required at least once per semester, after which the student and advisor submit a progress report (see next paragraph).

Progress Toward the Degree. All students are expected to make reasonable progress toward the degree. Once a student has been admitted to candidacy, he (she) has five years in which to complete the research, defend the dissertation, and graduate. If the degree is not completed within the five years, the comprehensive examination must be re-administered. The new examination will reflect developments of importance in the area of study occurring since the first examination, as well as general areas of related significance. As research begins in earnest, a progress report is required each semester, describing methodologies used, data collected, problems encountered, and plans for the following semester. A copy of the progress report, graded S or U by the advisor, is forwarded to the GPC and becomes part of the student's file. This evaluation process must be completed, and the report forwarded to the GPC by the Friday of finals week.

If satisfactory progress has not been made (a grade of U), results of the review by the dissertation committee will be presented, with the recommendations, to the GPC. The GPC will decide what actions, if any, are required.

Preparation of Dissertation. The dissertation must represent an excellent piece of scientific work. The writing must be clear and grammatically correct. Methods, results, and conclusions must be described thoroughly. The format of the dissertation must follow the set of

instructions for preparing thesis or dissertation included in this handbook. The dissertation advisor should distribute copies of the dissertation to the dissertation committee only after approval. The dissertation should be submitted to the committee a minimum of four weeks prior to the anticipated date of the final exam.

Final Examination. A completed Progress Form “V Approval for Thesis/Dissertation Presentation and Final Exam” (see Appendix A), containing the required signatures, needs to be forwarded to the GPC for approval before the final examination can be scheduled. The request must be submitted to the Graduate Programs Office at least two weeks prior to the examination, following procedures specified by the Graduate Programs Office.

The final examination for the Doctor of Philosophy degree consists of two parts: a seminar and a final oral exam, or dissertation defense. The first is a public seminar that is open to all faculty and students. The departmental seminar coordinator posts notices of the seminar. At the seminar, the student presents the research and fields any questions and comments from the audience. The second part of the examination, which is the defense, takes place after the seminar. The student meets privately with the committee and any graduate faculty who wish to attend. The student takes questions, comments, and suggestions on the research that the faculty may have about the dissertation. Once the dissertation is unanimously approved by the committee, the advisor notifies the GPC and the Graduate Programs Office of the successful completion of the exam and that all degree requirements have been met (see Doctoral Dissertation Oral Examination Report Form, Appendix A).

Recommended Sequence of Events for Completion of Ph.D. Requirements. The following list summarizes the landmarks of progress that should be followed as closely as possible.

- 1) Select advisor and gain acceptance into a laboratory.
- 2) Arrive at Florida Tech.
- 3) Meet with advisor for preliminary conference, selection of courses for first semester of study, and completion of Progress Form I.
- 4) Submit a Program Plan to the GPC for review and approval.
- 5) Complete the majority of coursework.
- 6) Select dissertation committee in consultation with advisor.
- 7) Schedule, take, and pass written comprehensive examination, administered by the GPC.
- 8) Prepare and defend dissertation proposal.
- 9) Complete Progress Form II. Admission to Candidacy and submit to GPC for approval.
- 10) Complete coursework.
- 11) Complete dissertation research.

- 12) Write dissertation.
- 13) Submit dissertation to committee with advisor's approval.
- 14) Schedule final examination at least four weeks after submitting dissertation to committee.
- 15) Notify Graduate School of the exam-date two weeks in advance.
- 16) Submit two (2) bound copies of the completed and approved dissertation to the Office of Graduate Programs. (Note that the Office of Graduate Programs has a separate set of procedures for creating and formatting the dissertation document; see [Thesis and Dissertation Process](#).)

APPENDIX A

INTRODUCTION

This appendix includes online links to University and Departmental forms required for your use as a graduate student in Department of Ocean Engineering and Marine Sciences. Most of these forms are also available in hard copy through the OEMS departmental office.

FORMS

[REGISTRATION](#)

[CHANGE IN REGISTRATION/STATUS](#)

GRADUATE STUDENT PROGRESS FORMS

- I. [Preliminary Conference](#)
- II. [Formation of Thesis or Dissertation Committee](#)
- III. [Thesis/Dissertation Title and Proposal Approval](#)
- IV. [Admission to Candidacy](#)
- V. [Approval for Thesis/Dissertation Presentation and Final Exam](#)

[MASTER'S DEGREE PROGRAM PLAN](#)

[REQUEST FOR CHANGE IN GRADUATE PROGRAM PLAN](#)

[REQUEST TO STUDY AT ANOTHER INSTITUTION AND TRANSFER OF GRADUATE CREDITS](#)

[DOCTORAL PROGRAM CHECK LIST](#)

[DOCTORAL PROGRAM PLAN](#)

APPLICATION TO TAKE DOCTORAL COMPREHENSIVE EXAMINATION

DOCTORAL COMPREHENSIVE EXAMINATION REPORT

DOCTORAL DISSERTATION PROPOSAL CONFERENCE REPORT AND/OR APPLICATION TO DOCTORAL CANDIDACY

[ESTABLISHMENT OF DOCTORAL COMMITTEE](#)

APPLICATION TO TAKE DOCTORAL COMPREHENSIVE EXAMINATION

[PETITION TO GRADUATE](#)

[NOTICE OF THESIS OR DISSERTATION DEFENSE AND ORAL EXAMINATION](#)

MASTER'S EXAMINATION REPORT

DOCTORAL DISSERTATION ORAL EXAMINATION REPORT

[GRADUATE STUDENT CHECKOUT FORM](#)

[REPORT OF THE GRADUATE ADVISORY COMMITTEE](#)

APPENDIX B

INTRODUCTION

This appendix includes the Program Plan for the Ph.D. in Biological Sciences (Major Code 9021).

Core Curriculum

Doctoral students may satisfy part of or the entire core-course requirement by transfer of equivalent graduate courses taken in fulfillment of a Master of Science or similar degree.

MAR 5028 Design and Analysis of Ecological Studies (3 credits)

Seminars

MAR 5990 Biological Sciences Seminar (0 credit)

MAR 5991 Biological Research Seminar (1 credit)

Electives

Course offerings are dynamic. Please consult this list and a current catalog.

MAR 4515 Ecology of Coral Reefs (3 credits)

MAR 4517 An Introduction to Modeling for Ecology and Biology (4 credits)

MAR 4904 Field Biology and Evolution of the Galapagos Islands (3 credits)

MAR 5010 Ichthyology (3 credits)

MAR 5022 Coral Reef Ecology (3 credits)

MAR 5030 Conservation Biology (3 credits)

MAR 5031 Conservation Genetics (3 credits)

MAR 5047 Ecological Physiology of Fishes (3 credits)

MAR 5070 Ecological Physiology (3 credits)

MAR 5090 Natural History and Management of the Upper St. Johns River (3 credits)

MAR 5120 Ecology of Tropical Marine Communities (3 credits)

MAR 5140 Coral Ecology (3 credits)

MAR 5510 Current Topics in Ecology (3 credits)

MAR 5573: Scientific Analysis, Writing and Presentation (3 credits)

MAR 5630 Sensory Biology (3 credits)

MAR 5813 The Biology of Sea Turtles (3 credits)

ENS 5800 Limnology 1 (3 credits)

ENS 5801 Limnology 2 (3 credits)

ISC 5016 Presenting Science (3 credits)

OCN 5102 Marine Phytoplankton (3 credits)

OCN 5103 Marine Zooplankton (3 credits)

OCN 5104 Marine Benthos (3 credits)

See also electives and core curriculum with the BIO prefix for additional choices.

Research and Dissertation

MAR 5995 Biological Research (3 credits)

MAR 6999 Dissertation in Biological Sciences (3 credits)

APPENDIX C

INSTRUCTIONS FOR PREPARING A PROPOSAL, THESIS, AND DISSERTATION

INTRODUCTION

The term thesis refers to the written manuscript submitted as a requirement for an M.S. degree at Florida Institute of Technology, and the term dissertation refers to that submitted for a Ph.D. degree. To avoid being cumbersome, the word thesis will be used throughout this guide for both.

The purpose of a graduate thesis in the sciences is to show others in your field that you are now capable of not only conducting original research but also communicating the results effectively to the scientific community. Your thesis will very likely be your first publication in the field, and as such becomes an especially important landmark in your career. A well-prepared thesis makes the resulting journal articles much easier to produce, lends a sense of credibility to the material, and, in general, reflects well on the department and university. Conversely, a thesis with misspellings, poor grammar, technical inconsistencies, and poorly prepared illustrations will make the preparation of any resulting journal article tedious, will make the reader wonder if the attention to scientific detail is equally sloppy, and will reflect poorly on the department and university and particularly the student.

CHOICE OF SUBJECT

Selecting a subject worthy of investigation is one of the most significant aspects of your graduate work. Such a topic should never be chosen without thoughtful consideration on your part and the approval of your graduate advisor.

The thesis must reflect a comprehensive understanding of the pertinent literature (which must be properly cited) and must express clearly and grammatically the method, significance, results, and interpretation of your research. The length of the completed manuscript should be no longer than is necessary to present all pertinent information. This length will, of course, vary widely depending on the research topic, nature of data, and the degree being sought.

The thesis should be a single unit of scholarly narrative, properly supported and documented, reporting your original work done under the supervision of a member of the graduate faculty (the advisor).

PROPOSAL PREPARATION

GENERAL INFORMATION. After preliminary approval by the advisor, one copy of the research proposal must be submitted to each member of your advisory committee. The proposal is a formal description of your projected research. It is designed to offer you an opportunity to demonstrate your ability to pursue the projected topic to a successful conclusion. The nature of the problem to be examined, the status of current research relating to the subject under consideration, the research method, the budget and the importance of the projected work should be carefully described in the proposal. A timeline or milestone chart indicating tasks and when

they are to be completed should also be included. See p. 21 for additional information on proposal preparation.

All rules of style and format (such as those pertaining to word processing, references, and footnotes) that apply to the completed thesis also apply to the proposal.

THESIS PREPARATION

STANDARDIZING PAGE AND TEXT FORMATS. This manual is to be used as a style guide in answering questions regarding the text and page format of theses. The purpose behind these specifications is to achieve a uniform, consistent and professional appearance in all theses produced in the Department of Ocean Engineering and Marine Sciences at Florida Tech.

The formatting rules in this guide have been modeled after, and adapted from, two well-known style manuals:

1. Miller JJ, Taylor BJ. 1987. *The thesis writer's handbook*. West Linn (OR): Alcove. 322 p.
2. [CBE] Council of Biology Editors, Style Manual Committee. 1994. *Scientific style and format: the CBE manual for authors, editors, and publishers*. 6th ed. Cambridge (UK): University of Cambridge. 825 p.

These references should be consulted when questions arise that are not specifically covered by this manual. Use The thesis writer's handbook for page style and format questions concerning the title page, approval page, the abstract, introduction, etc., and text format requirements for spacing, margins, indentations, etc. Use the CBE style manual for style and format questions concerning citing references in the text, list of references, illustrations (figures and tables), the use of units, and proper abbreviations.

Do not use past theses as examples of format and style. Not all theses have followed the rules, and the rules have changed over the years.

Word Processor Specifications. Select a 12 pt font with a plain-face type (Times New Roman or Square Serif) rather than script, italic, or some other ornamental style when printing your thesis. If there is doubt about the size or style of type, clarify the matter with the Department Head before preparing the manuscript. The same type style must be used throughout the paper; do not mix type styles; do not use bold face type for headings or legend titles. The font size must also be the same, including page numbers; but superscripts and subscripts may be struck in 10 pt. font. Italics may be used for generic and specific names of organisms and anywhere italics are normally used (e.g., genes). The printer must produce letter-quality print, superscripts, and subscripts. A laser printer or other high-quality printer must be used. Do not justify the right margin; not all word processors do a good job without leaving very irregular spacing within the text line.

Paper. Print your thesis on at least 20-pound white paper (e.g., standard xerographic paper), not on lightweight paper or onionskin, since this will not feed automatically through a photocopier.

Spacing and Indentions. The text is double spaced throughout. Headings or the first line of text will begin 2 spaces below the page number. In preliminary pages, the text ends 2 spaces above the page number. Single spacing (six lines per inch) is used only for specific, appropriate purposes, such as blocked inset quotations, itemized or tabular materials, figure and table legends, and literature cited (single space within the citation, double space between citations). Additional instructions on spacing are given in other sections.

The first sentence of each paragraph should be indented five spaces or 0.5 in indentation. Any quotation of six typed lines or fewer should use the same spacing as the narrative text. Quotations longer than six typed lines should be inset and single-spaced. Inset quotations do not require the use of quotation marks.

Margins. All typing and page numbers must fit within the margins (1.5 inch at the left, and 1.0 inch at the top, bottom, and right). If Microsoft Word is used, the following margin set up is recommend for all pages (including preliminary pages): top, 1.3 inch; bottom, 1.3 inch; left, 1.7 inch; right, 1.2 inch; header (where page number is printed in body), 1.0 inch; footer (where page number is printed in preliminary pages), 1.0 inch; gutter 0 inch. In addition to leaving one or two spaces around the margin to allow for expansion normally associated with the duplication process, this page setup gives the appearance of double spacing between the text and page numbers. All computer data, illustrations, and tables that lend themselves to reproduction on photographic or other acceptable paper must conform to the margins.

Pagination. Every page in the manuscript EXCEPT the title page and the approval page must be numbered. These 2 pages are considered to be pages. i and ii, but no pagination numeral is shown on these 2 pages.

- Preliminary pages--lowercase Roman numerals (iii, iv, v, vi, etc.) are used. The first page on which a number appears is the abstract page, which is numbered iii and is placed right after the approval page.
- Text and supplementary pages--Arabic numerals are used. The first page of the narrative text begins with 1, and the numbering runs consecutively to the end of the manuscript.
- Pages are numbered consecutively, as are tables, figures, and equations. The only exception to this rule is when an appendix has tables, figures, and equations (i.e., Table A-1).

Begin every major division of a thesis on a new page. These major divisions are: Abstract, Dedication (optional), Acknowledgments, Table of Contents, List of Tables, List of Figures; each new section such as Introduction, Materials and Methods, Results, Discussion, Conclusions, Literature Cited, and Appendix.

Subheadings or subdivisions within chapters and sections do not start on a new page but are placed on the page wherever they appear in the development of the text. The only exception is when this produces what is termed an "orphan" (i.e., the last line of the page is the heading itself). In this case, start the heading on the following page.

Placement of Page Numbers. All preliminary page numbers (lowercase Roman numerals) are centered on a line 1.0 in from the bottom edge of the page. All other page numbers (Arabic numerals) are placed on a line, 1.0 in from the top of the page and even with the right-hand margin.

PARTS OF THE MANUSCRIPT. A thesis manuscript ordinarily has three main parts: (1) the preliminary pages, (2) the text, and (3) the supplementary pages.

Preliminary Pages. Include (listed in the order in which they appear in the thesis):

- Title page
- Approval page
- Abstract
- Acknowledgments (the Dedication page, if any, is placed directly before the Acknowledgments page)
- Table of Contents
- List of Tables (if more than one table is used)
- List of Figures (if more than one figure is used)

The Text. Includes (listed in the order in which they appear in the manuscript):

- Introduction
- Body of the thesis with the large divisions (Materials and Methods, Results, Discussion and/or Conclusion.)

Supplementary Pages. Include (listed in the order in which they appear in the manuscript):

- Literature Cited (required in all theses and dissertations)
- Appendices (if needed).

All preliminary page titles, all chapter designations and titles, and supplementary page titles are centered at the top of the page (two spaces below the page number) and are typed in capital letters. Section titles (when used in place of chapters) are typed in capital letters and are centered at the top of the page (two spaces below the page number). Examples of some of the major parts of the manuscript are presented in Fig. 1- 4. Figures are for style, spacing, and format information only. They are not to be used as page or margin templates. Page setup and margins are considered in other sections of this guide.

Title Page. The title page must follow exactly the style, spacing, and form of the example in Fig. 1. Points to note particularly are:

- The title is typed in capital letters, double spaced (if the title is more than one line in length) and centered within the margins of the paper in an inverted pyramid style.
- There is no page number on the title page (although it is considered to be p. i).
- For the M.S. degree, the term 'Thesis' is used instead of 'Dissertation'.
- The full legal name of the author, without initials and without designation of profession, military rank, or marriage is listed as shown.
- The full name of the degree to be awarded (MASTER OF SCIENCE or DOCTOR OF PHILOSOPHY) and the major department (OCEAN ENGINEERING AND MARINE SCIENCES) are written out in capital letters.
- Degrees are awarded in May and December. The appropriate month and year must be shown on this page.

Approval Page. The approval page, following exactly the style, spacing, and form of the example shown in Fig. 2, must bear the original signatures of all members of your advisory committee and the Department Head. Care should be taken to assure that they sign in black ink, since other colors do not reproduce well.

The number of members of your advisory committee determines the number of signature spaces on the page. The position (in terms of the committee) of each member of the committee must be indicated under each signature. The committee as listed on this page must include all the names indicated as being committee members on the exam announcement for the defense.

Particular points to note are:

- The title is typed in capital letters, double spaced (if more than one line on length), and centered within the margins of the paper in the inverted pyramid style.
- The line “Approved as to style and content by:” is lined up with the signature line, not centered.
- There is no page number on the approval page (though it is considered to be p. ii).
- For the Ph.D. degree, the word "DISSERTATION" is used instead of "THESIS".
- Your full legal name without initials and without designation of profession, military rank, or marriage is listed as shown.
- If your committee has co-chairpersons, then each is listed by position as "Co-chairperson" of the committee.
- If the Department Head serves also as a member or as chairperson or co-chairperson of your advisory committee, so indicate.
- Degrees are awarded in May and December. The appropriate month and year must be shown at the bottom of the approval page.

TITLE OF DISSERTATION
IN CAPITALS

By
YOUR NAME IN CAPITALS

B.S., University Name
M.S., University Name

A dissertation submitted to the Department of Ocean Engineering and Marine
Sciences of Florida Institute of Technology in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY
in
PUT YOUR SUBJECT AREA HERE

Melbourne, Florida
May 2019

Figure 1. Title page.

TITLE OF THESIS
IN CAPITALS

A THESIS

By

YOUR NAME IN CAPITALS

Approved as to style and content by:

Robert Weaver, Ph.D. Chairperson
Associate Professor
Department of Ocean Engineering and Marine Sciences

Eraldo Ribeiro, Ph.D.
Professor
Department of Computer Engineering and Sciences

Stephen Wood, Ph.D.
Associate Professor
Department of Ocean Engineering and Marine Sciences

Richard B. Aronson, Ph.D.
Professor and Head
Department of Ocean Engineering and Marine Sciences

May 2019

Figure 2. Thesis committee approval page.

ABSTRACT

A STUDY OF THE PHILOSOPHY OF RESEARCH FROM THE
NINETEENTH CENTURY TO THE PRESENT TIME

by Donald Jay Lee, B.A., Central College;
M.S., Glenn State University

Chairperson of Advisory Committee: Joseph S. Guy, Ph.D.

The text of the Abstract starts on this line with a 1/2 inch (5 spaces) indentation.

Figure 3. Abstract page.

Table of Contents. The table of contents indicates the major divisions and principal (or second-order) subheadings of the manuscript. It should provide an analytical presentation of the materials in the study and page numbers on which the sections start. Preliminary page listings in the table of contents start with the abstract (iii) and must include all preliminary pages (inclusion of the table of contents page itself is optional).

All divisions of the text (i.e., chapters or sections) and subheadings within each chapter or section must be listed in the Table of Contents. The appropriate spacing, indentions, and capitalization should show the subordination of the subheadings. The table of contents at the beginning of this guide can serve as an example.

All supplementary pages (literature cited and appendices, if any) must be listed in the table of contents. The numbering, wording, and pagination of titles and headings must be exactly the same in the table of contents as they are on the pages of the manuscript.

Text. An example of page and text formatting is shown in Fig. 4. The text may be divided into chapters or sections. Chapters are used only when the thesis or dissertation topic consists of two or more distinctly separate subjects that cannot be combined. Each chapter is complete; i.e., each chapter has its own section headings. The literature cited sections, however, may be combined.

Chapters are designated by uppercase Roman numerals used consecutively throughout the narrative. Each chapter begins on a new page. The chapter designation (e.g., CHAPTER I) in capitals should be centered within the margins at the top of the page. The chapter title also is in capitals and is centered a double space below the chapter designation. All chapter titles of more than one line in length should be single-spaced. The section heading INTRODUCTION is centered on the margins, 3 spaces below the chapter title and the text begins 3 spaces below the section heading. In addition to an introduction, each chapter may include methods and materials, results, and discussion sections, each beginning on a new page. After all the chapters have been presented, a CONCLUSIONS section should begin on a new page with the heading centered and in capitals. Following conclusions, the LITERATURE CITED section should begin on a new page with the heading centered and in capitals. Each chapter or each section begins on a new page. Subdivisions within these sections or chapters do not begin on a new page. Use a system of subdivisions within the sections or chapters as in the example in Fig. 4.

If the chapter format is selected for the thesis or dissertation, it is suggested that the Department Head be consulted early in the planning for this format.

SECTION HEADINGS
ARE IN ALL CAPITAL LETTERS, AND CENTERED

Theses are generally organized into sections with each section covering a portion of the thesis topic. Examples may be the headings of the preliminary pages (e.g. ABSTRACT, ACKNOWLEDGMENTS, TABLE OF CONTENTS, LIST OF FIGURES, LIST OF TABLES) or, as in the main body of the thesis, the INTRODUCTION, MATERIALS AND METHODS, RESULTS, DISCUSSION, CONCLUSIONS, and LITERATURE CITED. If the section heading is more than one line, the lines can be of different length and single spaced.

Theses may also be organized into chapters if the topic is sufficiently diverse to warrant it. If this organization is used, the chapter number heading is capitalized and placed as shown above with the section heading 2 spaces below the chapter number heading. Chapters are numbered in roman numerals. Each chapter will have its own introduction, materials and methods, results, discussion, and conclusions sections. A common literature cited section however should be used.

The main body of the thesis is double spaced, and begins three spaces below the section heading.

SECOND-ORDER HEADINGS

Second-order headings are typed in capital letters, flush with the left margin, and on a separate line. The text begins 2 spaces below second-order headings

THIRD-ORDER HEADINGS. This heading is typed in capital letters, underlined, indented, and in line with the text.

Fourth-Order Headings. This heading is typed in capital and lower-case letters, underlined, indented, and in line with the text.

Figure 4. Text page illustrating section headings.

Tables and Figures. Tables and figures must be able to stand alone without benefit of the text. The titles, legends, and symbols must be sufficiently complete so that a reader can understand and interpret the data without the need to refer to the text for explanation. No part of a table or figure can encroach into a margin, including captions, labels, etc. Tables and figures should be placed as close as possible after the first reference made to them in the text. For a short table or small figure, this may be on the text page itself, in which case it should be separated from the text by triple spacing at the top and bottom. A full-page table or figure should be placed on the page following the first reference to it. Subsequent references in later sections to a given table or figure should include the page number in parentheses--e.g. "... as in Fig. 3 (p. 3)."

Each table or figure in the main body of the thesis must have a number and a title. Titles should appear at the top of tables (Table 1) and at the bottom of figures (Fig. 5) leaving 2 spaces between the illustration and the title. Titles should be preceded by the word "Table", or "Figure", followed by an Arabic number and a period. The first word of the title is capitalized, and the title ends with a period. Titles of more than one line are typed single-spaced with a hanging indent, the second and subsequent lines aligned with the first letter of the title. The numbering should be consecutive from the beginning through to the end of the thesis. In this regard, you have two basic choices of format: (1) number the tables or figures consecutively (i.e., Table 1, Table 2, Table 3, etc.) throughout the entire document (except for the appendix); or (2) use a dual number system in which tables are numbered consecutively within each chapter and in which each number is preceded by the chapter number (i.e., Table I.1, Table I.2, Table I.3, etc. in Chapter I, and then Table II.1, Table II.2, Table II.3, etc. for Chapter II). Any references to figures or tables from previous chapters should include both the complete designation and page number (e.g., Table II.2, p. 47). When there are tables and figures in the appendix, they should be numbered Table A-1, Table A-2, etc. in Appendix A and Table B-1, Table B-2, etc. in Appendix B. When tables or figures in the Appendix are referenced in the text, the page number, in parenthesis, must accompany the reference--e.g., "...as in Table B-2 (p. 276)."

All titles and page numbers must be in the same typeface as the body of the text and be full-size regardless of any reduction made of the original illustration image.

Titles should be as concise as possible, but they should clearly describe the content of the table or figure. If two or more titles would otherwise be identically worded, then you must incorporate some differentiating word or phrase into each.

If tables (or illustrations) must be placed sideways on the page (landscape orientation), then the top of the table (or illustration) should be at the binding side of the paper. Tables too long or too wide for a single page, landscape or portrait), may be continued on the following right-hand pages(s). The table title should not be repeated. The heading should read "Table 4. Continued" and column and row headings must be repeated for continued tables.

Tables too long to conform to minimum margins may be typed in a smaller font. The page number, table number, and title should be in the same font size as the text of the document.

Table 1. Caloric density for major prey types of *Dasyatis sabina*. Data expressed as mean \pm standard error. Number of species analyzed per taxon or ophiuroid disks from April, August, and December samples indicated in parentheses. The number of subsamples per species was 10. Ash free dry weight (AFDW).

Taxon	Caloric Density (cal/mg AFDW)
Amphipods	5.03 \pm 0.31
Isopods	4.78 \pm 0.07
Ophiuroid Disks (3)	5.31 \pm 0.42
Mysids (1)	5.98
Polychaetes (5)	5.72 \pm 0.46
Bivalve Bodies (2)	5.59 \pm 0.17
Species (17)	5.40 \pm 0.41

From Bradley (1996)

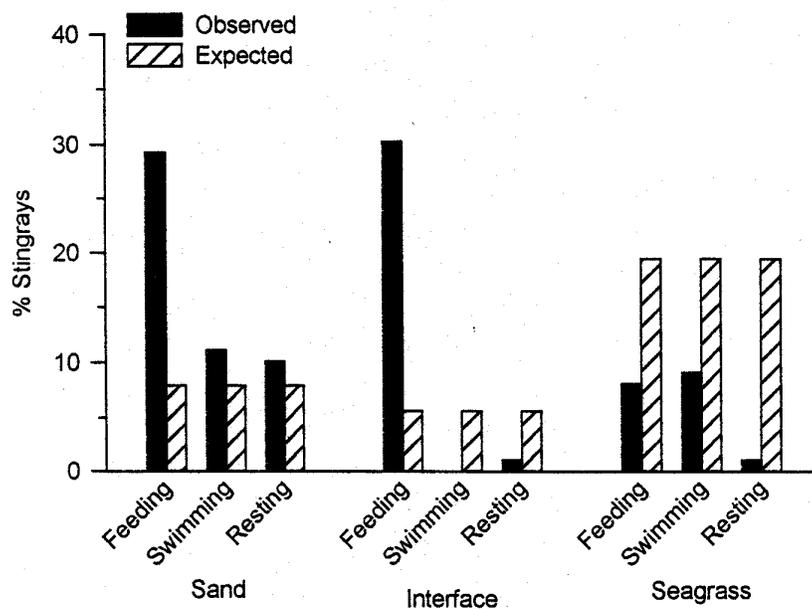


Figure 5. Percentage of stingrays engaged in the three activities: feeding, swimming, and resting within the three subhabitats: sand, seagrass, and interface. Data expressed as percent total stingrays observed (dark bars) and percent total stingrays expected (hatched bars). From Bradley (1996).

List of Tables and List of Figures. The titles of all tables and figures must be single spaced and transcribed exactly (with their numbers) and in order on the list of tables and list of figures, respectively. When a title is exceptionally long, you may transcribe the first 2 lines in the list of tables or figures providing that the 2 lines clearly indicate the content of the table or figure and adequately differentiate between that title and those of other tables or figures. Do not include the figure or table legend in the list of tables or figures. Double space between each table and figure listed.

A list of figures or list of tables page is not necessary when the paper contains only 1 table or figure.

Preparation of Figures. Care and some forethought should be given to preparing the illustrations for your thesis. All graphs, charts, and maps should be printed on a high quality laser or ink jet printer. Color may be used if interpretation of the illustration is enhanced by its use. Otherwise, print all illustrations in black ink with appropriate legends to identify or label component parts. To make your figures as effective as possible, try to refrain from packing too much information into one graph. Usually only about nine symbols for different curves can be distinguished (Xs and open and closed circles, squares, triangles, and inverted triangles) on one graph.

If a figure is too large to fit within the margins, it may be photographically reduced. Be wary of using a copier to make successive reductions of a draft graph from which to draw a final figure. Each time a graph is copied, it becomes progressively distorted until the axes are at anything but a 90° angle!

Mounting Figures in the Manuscript. Care must be taken when mounting photographs for inclusion in the manuscript to ensure that they are securely and permanently fastened. Do not use rubber cement or glue sticks. Positional mounting adhesive (Scotch Brand 568 or Scotch 3M Spray Mount Adhesive) is best for this purpose and should be applied to the edges and corners of the photographs to ensure that they are firmly glued to the paper. Be careful: excess adhesive may bleed through the paper and cause pages to stick together. A hot mount method employing a warm iron and dry mount tissue sold by Kodak may also be used, but care must be taken not to damage the photograph with heat from the iron. All materials must observe the margins restrictions.

Photographs printed on glossy printer paper (8½ x 11), designed for that use, may be included in the text. For quality reproduction of half tones, fast drying HP Premium Photo paper such as HP LaserJet Paper HPJ1124 24 lb., 96 brightness is recommended.

Oversized materials, such as large maps or charts that cannot be reduced in size and yet must be included in the thesis must be folded to measure no more than 7½ x 10 inches.

NOTE: Folding of materials to be bound with the pages of a narrative or separate inserts in pockets on the pages is discouraged. Many such items can be reduced and photographically reproduced. In the binding process, inserts are easily misplaced, and folded edges must be very narrow to prevent their being cut in the trimming at the bindery. Reduced tables, charts, and figures must be large enough to read easily.

Ideally, figure legends should be single spaced on the same page as the figures; however, a "facing page" may be necessary. Only a page number appears on the front side of the sheet. The legend is to be typed on the backside of the page, observing the proper margins (binding side of page 1.5 in) and orientation. Legend orientation must agree with the orientation (portrait or landscape) of the figure. The page on which the figure appears is numbered consecutively, with the page number placed in its usual position. On the List of Figures page, the number of the page on which the figure appears is the page number that is to be recorded opposite the figure number and title.

Do not use the "facing page" legend style unless it is absolutely necessary to do so. It is an accommodation only for those situations in which the legend cannot be typed directly onto the page on which the picture or drawing appears or when there is no room on the figure page for the legend to be typed within the margins. These are the only instances when typing is permitted on the backside of a page in a thesis.

Citing References in the Text. No reference should be included in the thesis unless it can be verified against the original document. Practices for citing references in the text vary widely from journal to journal. The system adopted by this manual is the Name and Year system (N-Y) sometimes known as the Harvard System. This system requires you to cite the name(s) of the author(s) and the year of the publication in the text. The placement of the parentheses depends on the sentence structure.

One Author: Clark (1992) or (Clark 1992)

Two Authors: Clark and Jensen (1982), (1984) or (Clark and Jensen 1982, 1984)

Three or more Authors: Clark et al. (1990) or (Clark et al. 1990)

If the author(s) and the year are identical for more than one reference, insert lowercase letters in alphabetical succession after the year.

Clark (1992a) or (Clark 1992a)

Clark (1992b) or (Clark 1992b)

If two or more citations are used to document a single observation, separate them by a comma.

(Clark and Jensen 1982, Clark et al. 1990)

Taxonomic authorship is not a citation of literature. In such cases, follow the rules for punctuation in botanical and zoological nomenclature. For example, in the sentence, The apple snail *Ampullaria pinei* Dall, 1898 was originally described from the Homosassa River, but *Pomacea paludosa* Say, 1829 was described from the St. Johns River. Neither Dall nor Say is included in the literature cited section.

Literature Cited. The system of referencing the sources of information used in the thesis must follow the N-Y (name, year) style shown in the CBE Style Manual. Bibliographical entries should include only those sources of materials cited directly in the text of the thesis. The references should appear in a list at the end of the document entitled LITERATURE CITED. References to articles accepted for publication but not yet published and to unpublished documents held in a library or archival collection accessible to the public may also be listed in this section. Other unpublished material or personal communications not accessible to the scientific public are identified in statements within the text.

Information for a bibliographic reference should be taken from the original of the work being cited. Examples listed below for standard journal articles, books and monographs, technical reports, conference proceedings and theses and dissertation, should be followed. Please refer to the CBE Style Manual for other examples not given.

Standard Journal Article:

Clark KB, Jensen KR. 1982. Effects of temperature on carbon fixation and carbon budget partitioning in the zooxanthellal symbiosis of Aiptasia pallida Verrill. *J Exp Mar Biol Ecol* 64:215-30.

Clark KB, Jensen KR, Stirts HM. 1990. Survey for functional kleptoplasty among West Atlantic Ascoglossa (=Sacoglossa) (Mollusca: Opisthobranchia). *Veliger* 33:339-45.

Defreese DE. 1987. Burrowing activity and population biology of Ascobulla ulla Marcus. *Veliger* 30:36-41.

Chapter in a Book:

Clark KB. 1992. Plant like animals and animal like plants: symbiotic coevolution of Ascoglossan (=Sacoglossan) molluscs, their algal prey, and algal plastids. In: Reisser W, editor. *Algae and symbioses*. Bristol (UK): Biopress Ltd. p 515-530.

Textbook:

DeRobertis ECP, Saez FA, DeRobertis EMF Jr. 1975. *Cell biology*. 6th ed. Philadelphia: B. Saunders. 897 p.

Journals and books published before 1920 often printed plates and figures at the end of the volume rather than include them within the article. It is appropriate then to include the figures and plate numbers that go with the article or chapter cited immediately following the page number(s).

Kingsley, JS. 1880. On a collection of Crustacea from Virginia, North Carolina, and Florida, with a revision of the genera of Crangonidae and Palaemonidae. *Proc Acad Nat Sci Philadelphia* 31:383-427. Pl nr 14.

Conference Proceedings:

Cohen GM, Love JE. 1993. Neuronal types in the chicken's statoacoustic ganglion. In: Bjurstedt H, editor. *Proceedings of the 14th annual meeting of the IUPS commission on gravitational physiology; 1992 Sep 29-Oct 2; Berlin*. A supplement to *The Physiologist* 36(1):77S-80S.

Technical Report:

Wheeler RM, Mackowiak CL, Sager JC. 1990. Proximate composition of seed and biomass from soybean plants grown at different carbon dioxide (CO₂) concentrations. NASA Technical Memorandum nr 103496. Kennedy Space Center (FL): The Bionetics Corp. 28 p.

Dissertation or Thesis:

Greene LE. 1990. Use of discrete group censusing for assessment and monitoring of reef fish assemblages [dissertation]. Melbourne (FL): Florida Institute of Technology. 69 p.

Eward KL. 1992. Regulation of iodine and amino acid uptake by iodine in lactating rat mammary epithelium [thesis]. Melbourne (FL): Florida Institute of Technology. 27 p.

Abstract:

Turingan RG, Beck JL. 2002. Predator-prey interactions in the marine plankton: functional and morphological bases of prey-capture performance in marine fish larvae [abstract]. In: Society for Integrative and Comparative Biology annual meeting and exhibition program; 2002 Jan 2-6; Anaheim. McLean (VA): SICB Business Office. p 418. Abstract nr 38.2.

(Please note that the 4 space-hanging indent is the ONLY exception to the style given in the CBE style manual. Follow all other formatting rules as it applies to the literature cited.)

In the list of literature cited, the entries are arranged alphabetically by author and then chronologically when authors of two or more entries are the same.

If you wish to list general references consulted and used as background study, then these may be listed as a subdivision to the literature cited section. Some subheading title such as "Supplemental Sources Consulted" should be added at the conclusion of the sources cited directly, and the background materials may be listed alphabetically by author and should include the pertinent information for proper documentation.

Appendix. An appendix is optional and should be included only after consultation with your thesis advisor and careful consideration of its contribution to the thesis. Figures and tables discussed in the text cannot be placed in the appendices. Materials are included in an appendix that enhance or clarify the narrative text of the thesis. This may include, but is not limited to, technical notes, maps, photographs, computer printouts, complex charts or graphs, and long and detailed methods or survey forms. Use a separate appendix for each different type of material.

A small collection of material can be grouped together and simply titled "APPENDIX." If the amount of material is extensive, it should be classified into categories with each grouping constituting a separate appendix. When more than one appendix is used, each must be designated

by a letter (Appendix A, Appendix B, etc.), as well as by a title. Each appendix should begin with a title page in the same format as the first page of a chapter or main section. When no explanatory text is required, the page will contain only the appendix designation (e.g., APPENDIX B) centered between the margins and the title, centered and begun three spaces below the appendix designation. If the title is more than one line, it is single-spaced. The sequence of page numbers in the main text is continued in the appendices.

Tables and figures in appendices are numbered consistent with the appendix designation (Figure A-1, Figure A-2 for figures in appendix A; Table B-1, Table B-2 for tables in appendix B.)

EDITING YOUR MANUSCRIPT. At the risk of overstating the obvious, if you are at all unsure of the spelling of a word, USE A DICTIONARY or a spelling checker on a computer/word processor. Also, be careful to use words correctly. An excellent source book in this regard is:

Freeman MS. 1983. A treasury for word lovers. Philadelphia: ISI Press. 333 p.

In editing your manuscript, you should check especially that your spelling is consistent (standard American) in all words that have alternative spellings; in geographical, trade, and people's names; in abbreviations; and in units. The same holds true with regard to spacing.

In proofreading your thesis, many mistakes may be caught if, after reading it front to back, you read your thesis from back to front. Too often the tendency is to read what should be there rather than what is there.

References. References require careful, albeit tedious, checking. Some aspects to check in particular are:

- The dates should agree with those given in the text.
- The spelling and order of names (when there is more than one author) should agree with those cited in the text.
- When more than one reference is cited, the order of citations should be done consistently.
- The references in the Literature Cited section should be in a consistent alphabetical style.
- The reference must include the full title and beginning and ending pages.
- Check that all references are both cited in the text and are represented in the Literature Cited section.

Figures. Figures also should be standardized. Some aspects to check in particular are:

- Similar figures should be set up in the same format, especially with regard to axis labels, capitalization, and symbols.
- Maps must have latitude and longitude indications or, if the area under consideration is small (less than a few square kilometers), they should have a north arrow and a scale.
- All symbols should be defined.
- Any accessory scales should be clear as to what they mean.

Table of Contents, Figure Legends, and Tables. Again, consistency is of key importance. Some aspects to check in particular are:

- All headings, table titles, and figure legends should correspond exactly to those indicated in the Table of Contents, List of Figures, and List of Tables (exceptions: if symbols are defined or if a scale is given in a figure legend, they need not be included in the List of Figures).
- A table or figure number cited in the text should correspond to the correct table or figure.
- All tables should have the same format as far as capitalization, both in the table titles and table bodies.
- All footnotes in tables and references in both tables and figures should be formatted consistently. For example, if one table references T. Doe as "Doe (1984)", then all tables use the same format, as opposed to "Doe, 1984" or "Source: Doe (1984)".

Acronyms and Abbreviations. All acronyms and abbreviations (except for standard units) should be defined the first time that they are used in the Abstract and then again the first time that they are used in the text.

Units. Units should be displayed in a consistent manner (only one system is used, e.g., mg/l and mm/h or mg l⁻¹ and mm h⁻¹, not mg/l and mm h⁻¹). If metric units are used, then all measurements should be metric, unless special custom dictates otherwise. This applies to all parts of the thesis--text, tables, and figures.

Statistics. Consideration of accuracy and precision in measured or calculated values is most important. Without such information, your results will have limited application. Be sure that you use the appropriate number of significant figures consistently. Likewise, you should always include the number of replicates, means, and standard deviations, if applicable.

The use of advanced statistics has enabled scientists to uncover a wide range of correlations and to test for significance. Each statistical test cited in your thesis should be fully referenced and conform to standard nomenclature and procedure.

There are many textbooks and reference books available providing discussions of error and uncertainty in the measurement of properties. An excellent source is Biometry by Sokal and Rohlf.

Numbers in Text. (From CBE Style Manual, 6th ed.) When a number designates anything that can be counted or measured, Arabic numerals should be used instead of words:

3 toads 5 enzymes 52 proteins 573 clams

Ordinal numbers are treated in the same manner:

2nd 5th 47th 643rd

If a number begins a sentence, the number should be spelled out or the sentence needs to be reworded:

"Twenty milligrams is the desired amount, but 15 mg is enough."

"The desired amount is 20 mg, but 15 mg is enough."

For numbers consisting of 2 to 4 digits, the numerals are run together:

12 234 2000 3456

For numbers with more than 4 digits, mark off groups of 3 digits, starting at the decimal point with commas. Exceptions are US postal codes, patent numbers, and telephone numbers:

1,234,567 23,456.78

For numbers smaller than 1.0, an initial 0 should always be used before the decimal point:

0.123 $P = 0.05$

SUGGESTED STYLE MANUALS. No one should assume that this handbook answers the many questions of style arising during the course of preparing a thesis or dissertation. Excellent manuals are available for this purpose. Two manuals are recommended for use in addition to this handbook:

[CBE] Council of Biology Editors, Style Manual Committee. 1994. Scientific style and format: the CBE manual for authors, editors, and publishers. 6th ed. Cambridge (UK): University of Cambridge. 825 p.

Miller JI, Taylor, BJ. 1987. The thesis writer's handbook. West Linn (OR): Alcove. 322 p.

When inconsistencies arise between the manuals that are not resolved by this handbook, the final authority is the Department Head. See the Department Head for any questions you may have.

SPECIFIC ITEMS CHECKED BY THE THESIS COMMITTEE

In addition to technical content and quality, the advisory committee will check:

- General neatness, including quality and method of duplication.
- Consistency of style and form.
- Title page, approval page, and abstract page, including:

Style, spacing, and form (follow examples given in this guide).

Correct month (May or December) and year of graduation on all pages that require this information (title page, approval page, abstract page).

Your full legal name without designation of profession, military rank, or marriage on title, approval, and abstract pages.

- Exact correspondence of titles and page number of items in the table of contents, list of tables, and list of figures with the same titles and page numbers in the text.
- Style and spacing of major divisions and subheadings within the text, including:

An examination of each major division. Each major division is typed in capital letters and starts on a new page. Examples of major divisions are the Abstract,

Acknowledgments, Table of Contents, List of Tables, List of Figures, Literature Cited, and each chapter (or section, if used in place of chapter divisions).

Consistent subordination of subheadings within each chapter or section. subheadings are the divisions within each chapter or section, do not start on new pages, and are not typed solely in capital letters.

Indication of major divisions and principal (or first-order) subheadings on the table of contents page.

- Style and placement of figures and tables within paper.
- Reference system.
- Correct margins.
- Numbering of every page in paper starting with abstract page ('iii').

The Department Head will check your thesis very carefully for all of the above items to see that your thesis meets a uniformly high standard of presentation. The Department Head will address not only the scientific content (which is presumed to have been handled by the committee) but also the physical appearance, editorial details, and consistent format and style.

MAKING CHANGES IN YOUR MANUSCRIPT

When your manuscript has been checked for format and style, the Department Head will notify you about changes to be made. Although changes and corrections may be made on the original manuscript (with Liquid Paper or by other similar methods), it is preferable to reprint the corrected page. The corrected pages are then reproduced and substituted for unacceptable pages. You should make all necessary corrections promptly to expedite the final approval for the degree sought.

No interlineations, crossing out of letters or words, corrections made by the use of Liquid Paper, or extensive erasures are permitted on final copies (copies submitted to the Library).

The final typescript must be accurate, consistent in style, acceptable in form, and neat in appearance.

DEADLINES

At least 8 wks prior to anticipated graduation, you should present your thesis/dissertation to your advisor for review. The thesis must be successfully defended by the date specified by the Office of Graduate Programs and the completed, signed Examination Report submitted to the Office of Graduate Programs by this time. You must turn the copies of your thesis into the Graduate Office no later than the published deadline (Please contact the Graduate Programs Office). All other university or department-wide deadlines are listed in the Graduate Catalog. In addition, you should coordinate closely with your advisor on deadlines that they may require.

COPYING AND BINDING

The current Thesis/Dissertation Binding Instructions describe the details, costs and deadlines. These are sent to graduate students registered for thesis or dissertation. Students can obtain additional copies at the Graduate Programs Office, Crawford Building. In addition to the copies of your thesis, several other forms must be turned into the Graduate Programs Office. You must bring along your copy of the completed Petition To Graduate form (Appendix p. 87), showing that the binding fee has been paid, or a separate receipt for the paid binding charges (especially if you wish to have more than 5 copies bound).

If you are a Ph.D. candidate, you must also attach a filled-out Survey of Earned Doctorate form (available at the Graduate Programs Office) and, in a separate envelope, a copy of your abstract with a filled-out Dissertation Microfilming Agreement form (also available at the Graduate Programs Office). If you wish to copyright your abstract, you must also enclose the necessary fee in the form of a certified check. Plan to spend at least 15 min in the Graduate Programs Office while all of the paperwork is being completed. You will receive a receipt from the Graduate Programs Office vouching that you have turned in an acceptable thesis because this will be your only proof that you did indeed turn in your thesis, keep it until you receive your bound copy.

When submitting your thesis or dissertation to the Office of the Graduate School, all students must bring the following:

- At least 5 copies of the complete thesis, each in a separate envelope (do not seal or close clasp) labeled with your name, student number, academic department, and a local phone number. Underline your surname and write it in all capital letters as shown below:
SMITH, John Edward
 123-45-6789
 Department of Ocean Engineering and Marine Sciences
 723-1234
- Verification that the binding fee was paid. (first Petition for Graduation, cashier's receipt, canceled check, etc.)

Ph.D. students also bring:

- One additional properly labeled envelope containing a copy of the title page and abstract
- Receipt that the microfilming fee was paid
- Completed Dissertation Microfilming Agreement form
- Completed Survey of Earned Doctorate form

MICROFILMING

If you are a Ph.D. candidate, you must submit your dissertation and an abstract to University Microfilms, Ann Arbor, Michigan, for publication in Dissertation Abstracts International as a requirement for graduation. You must make all of the arrangements and pay all of the costs (as described previously).

PUBLICATION OF MANUSCRIPTS

As a graduate student pursuing work leading to an advanced degree, you are encouraged to publish a part of your thesis in a scholarly journal before you finish your thesis. In addition, you must give an acknowledgment to Florida Institute of Technology.

Reprints of these published materials or copies of manuscripts prepared for submission to a journal are not acceptable in that format as part of the final copies of your thesis.