Marine Science Graduate Student Guidebook

College of Arts and Sciences
Department of Biology and Marine Science

Jacksonville University

November 2019

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References: Master of Science in Marine Science Student Handbook, Savannah State University, September 3, 2009 & various Department of Mathematics Documents at Jacksonville University

Application Requirements

A complete application for admissions consists of a completed application form, statement of research interests, official copies of all transcripts or date they were requested, official Graduate Record Exam (GRE) scores, and three letters of recommendation.

Regular Admission

Applicants may be granted regular admission provided they have met the following minimum degree program requirements:

1. An undergraduate degree from an accredited college on file with Admissions

2. An acceptable grade point average (3.0 GPA preferred)

3. Acceptable combined Verbal and Mathematics GRE scores (150 preferred)

A student may be granted conditional admission with deficiencies. Deficiencies must be completed within the period specified in the acceptance letter.

*MSC MS/MA Graduate Review Committee evaluates all scores (GRE, GPA, letter of recommendation, research statement) in admissions decisions.

Conditional Admission

Applicants who do not meet the requirements for regular admission may be considered by the MSC Graduate Review Committee for conditional admission. Conditionally admitted students are allowed to take a total of up to nine hours of graduate credit. If requirements for full admission are met prior to completion of 9-credit hours and the student has demonstrated progress to fulfilling deficiencies, the MSC MS/MA Graduate Review Committee can recommend full admittance before 9-credit hours have been earned. If requirements for full admission have not been met and/or significant progress in thesis research has not been demonstrated by the time 9-credit hours have been received, the MSC MS/MA Graduate Review Committee can recommend removal of the student from the program.

Requirements of Conditional Status

Students admitted to the MSC MS/MA program with conditional status must:

1. have a graduate faculty member assigned to be his/her graduate advisor. The advisor is someone who shares the student's scholarly interests and will provide assistance in refining the program of study and to carry out other duties typical of a graduate advisor.

2. obtain a B or better in each core course and maintain a B average each semester in his/her other courses.

3. successfully pass (receive a B or better) any undergraduate-level courses deemed necessary by the MSC MS/MA Graduate Review Committee by the end of their first year in the MSC MS/MA program.

4. submit a progress report to the MSC MS/MA Program Director at the end of each semester.

Graduate Review Committee

Students accepted with conditional status will be reviewed every December and May by the MSC MS/MA Graduate Review Committee (See Appendix 1C for University and MSC Program Leadership Flow Chart). The committee has the authority to recommend Academic Termination of the student from the program if significant progress is not being made.

The Graduate Review Committee will be comprised of at least three MSC faculty members. If there is a conflict of interest (for example, if a committee member is the advisor or advocate of a provisional student under review), then it is the member's responsibility to find a substitute among the MSC/BLY faculty.

Mechanisms for Change of Admission Status from Conditional to Regular

At the termination of a conditional student's first nine credit hours of study within the MSC MS/MA Program, the Graduate Review Committee must make a recommendation to the Director of MSC Graduate Program to either grant full admission to the student or remove the student from the program. To be considered for removal from conditional status, a student must maintain a B average in all graduate courses taken in the MSC MS/MA Program and obtain a grade of B or better in all core courses.

Deficiencies in Undergraduate Course Work

Any undergraduate courses recommended by the MSC MS/MA Graduate Review Committee must be taken within the first year of study in the MSC MS/MA program. It is strongly recommended that undergraduate course deficiencies be made up prior to entrance in the program in order to improve chances of successful completion of graduate courses. If the required courses are taken and passed with a B or better prior to beginning the MSC MS/MA Program, the relevant transcripts should be sent to the Registrar to be added to the application file and a photocopy should be sent to the Director of the MSC Graduate Program.

Transfer Credits

No more than six semester hours of graduate credit can be taken at another university. Courses must have been passed with a B or better and must be approved by the Director of the MSC Graduate Program.

Timing of Admission

Admission in the fall semester is preferred in order to facilitate the proper course sequence, but students can apply and enroll in any term.

Major Steps to Earning Your Marine Science MSC MS

1. Read about faculty research interests, contact/meet faculty with whom you might like to work (who might serve as graduate advisor and on MS thesis committee if appropriate). See Appendix 1C for information on University/Program leadership and faculty. Determine graduate advisor by end of first enrolled semester. Be aware that if you entered the program as an MA student that you will only become a MS student if a JU faculty member agrees to advise a thesis with you.

2. With graduate advisor, determine required course work for your degree. If enrolled for a Master of Science, determine tentative committee members (at least three).

3. Thesis advisor will send the list of designated committee members to the MSC Graduate Program Director and Department Head (s) via letter/email **by the end of the second semester that the student is enrolled.**

4. Have meeting(s) w/committee for guidance on area of research, curriculum, and timing of completion of teaching requirement. Your advisor and committee may require that you take certain elective courses to enhance your academic background.

5. Write a thesis proposal with assistance from your Thesis Advisor. For guidance see pages 234-242 in McMillan (2016). The department head has additional examples. Keep in mind that sections of a strongly written proposal could be used in the final thesis document.

6. Aim to meet with committee members to present/defend thesis proposal. Be aware that the MSC Graduate Program Director and Department Head(s) may be present. If the thesis proposal is approved, the thesis advisor will submit a letter/email to MSC Graduate Program Director. **This is due by the 1st Monday of last week of third semester of student enrollment.**

7. Conduct research, do analysis, and write thesis chapters (see McMillan and Appendix 1A for Thesis Format Guidelines). Be aware that for any quantitative based thesis (most theses will fall into this category) there must be statistical analyses to test hypotheses associated with the project. See the following websites for what makes a good thesis: http://www.library.auckland.ac.nz/student- learning/index.php?p=a_good_thesishttp://www.eeb.yale.edu/stearns/advice.htmhttp://www.ecoevoblog.com/2013/04/05/what-makes-a-good-undergraduate-or-masters-thesis/

8. Complete teaching requirement.

9. Have committee start to review completed written thesis no later than the middle of the semester prior to the semester of anticipated graduation.

10. If the thesis committee believes progress is going well, on the semester of anticipated graduation, apply (at beginning of semester) for graduation with the Registrar. Set thesis defense date with committee within six weeks of the date graduating students' grades are due in the Registrar's office (see academic calendar). The oral defense date must occur before the week of finals.

11. Submit a final draft of the thesis to thesis committee members in the second week of the semester of the final semester. The thesis committee reserves the right to postpone the scheduled thesis defense date if the final draft is submitted late or did not address comments raised by the committee in earlier drafts.

12. Successfully defend your thesis as an oral presentation that is open to the public. The oral defense will be followed by a private meeting with your thesis committee.

13. Make suggested changes to the written thesis and obtain signatures from committee and Biology and Marine Science Department Chair on the Thesis Defense Approval Form (Appendix 1B) as soon as possible. The accomplishment of this task is not to be later than one month after the oral defense.

14. The MSC Graduate Program Director will notify the Chair of the Department of Biology and Marine Science and Registrar of successful completion of thesis requirements. Note: The committee and department chair reserve the right to not sign the document if it is not considered satisfactory regardless how long it may take to complete suggested changes.

15. Get fitted and pay for cap and gown at University Bookstore.

Checklist and Timeline for MSC MS

Completed	Time	Action
	End of 1st semester	Identify faculty member as your graduate advisor
	2nd semester	Determine coursework and identify committee members.
	End of 2nd semester	Thesis advisor sends list of committee members to MSC Graduate Program Director and Chair, Department of Biology and Marine Science.
	1st Monday, last week of 3rd semester	Letter documenting approval of thesis proposal to MSC Graduate Program Director
		Complete teaching requirement
	Semester prior to anticipated graduation	Complete draft to thesis committee for review.
	2nd week of final semester	Submit final draft to thesis committee.
	Six weeks prior to graduation	Establish defense date.
	Defend thesis!	
	No later than 1 month after defense	Make any required corrections, obtain signatures, submit final document with signatures to thesis chair.
	The MSC Graduate Program Director will notify the Chair of the Department of Biology and Marine Science and Registrar of successful completion of thesis requirements	
		Graduate!!

Major Steps to Earning Your Marine Science MSC MA

1. Read about faculty research interests, and contact/meet faculty with whom you might like to work. Determine a graduate advisor by end of first enrolled semester.

2. With graduate advisor, determine required course work for your degree, when laboratory courses will be taken, and timing of completion of teaching requirement and comprehensive examinations (usually during second summer).

3. Take required classes and complete teaching requirement.

4. On the semester of anticipated graduation, apply (at beginning of semester) for graduation with the Registrar. Set comprehensive examination date with the faculty grading the exam.
    a. **Deadline is no later than six weeks prior to the date graduating students' grades are due in the Registrar's office (see academic calendar)**

5. The MSC Graduate Program Director will notify the Chair of the Department of Biology and Marine Science and Registrar upon successful completion of the comprehensive examination.

Checklist and Timeline for MSC MS

Completed	Time	Action
	End of 1st semester	Identify faculty member as your graduate advisor
	2nd semester	Determine required course work for your degree, when laboratory courses will be taken, and timing of completion of teaching requirement and comprehensive examinations
	Take required classes and complete teaching requirement.	
	On the semester of anticipated graduation	Set comprehensive examination date with the faculty grading the exam.
	The MSC Graduate Program Director will notify the Chair of the Department of Biology and Marine Science and Registrar upon successful completion of the comprehensive examination.	
	Graduate!!	

Orientation

New students will be provided with all of the policies, procedures, forms and information necessary to complete the degree no later than the first day of classes of the first semester of enrollment in the program.

Program of Study

Jacksonville University's **Master of Science in Marine Science and Master of Arts in Marine Science (MS/MA in MSC)** degree programs are designed to provide its graduates with the specific knowledge and skills necessary to be successful in a variety of marine-related positions in industry, government and education, as well as, for entry into doctoral marine science programs. The program emphasizes a hands-on approach to learning through either the completion of an original thesis project under the mentorship of an experienced marine science researcher, or a non-thesis option that requires extensive laboratory/field study. The graduate program continues the undergraduate emphasis on individualized programs of study that ensure students the best possible preparation based on their interests, background and abilities.

Marine Science faculty and researchers currently work in many fields critical to the understanding and sustainable use of marine resources and systems including aquaculture, benthic ecology, marine and estuarine ecology, coral reef ecology, environmental chemistry, phycology, environmental microbiology, toxicology, marine mammal physiology, invertebrate zoology, and ichthyology.

The program is designed to be completed in 2-3 years for full-time graduate students. All students must take a core 4-course sequence, appropriate elective courses, and complete (1) a successful thesis research project for the MS degree or
two laboratory courses selected in conjunction with their graduate advisor for the MA degree. State-of-the-art research and laboratory facilities at the Marine Science Research Institute will be utilized, with opportunities to conduct research at other facilities also possible.

Degree Requirements

Master of Science (MS) - Thesis required- 30 semester hours (SH) with no more than 6 SH in thesis preparation research. Thesis defense required.

Master of Arts- (MA) - Non-Thesis Option- 30 semesters (SH) with minimum of 6 SH of laboratory courses required. Comprehensive exam required

Program is designed to be completed in approximately 2-3 years of full-time study, but may be completed in a part-time manner if done within 7 years of starting first graduate course. Only 6 SH of marine science-related graduate work can be transferred from another regionally accredited institution, and applied to the MS/MA in MSC at JU.

All graduate students shall successfully complete 30 SH with a grade of B (3.0) or better in each course. Depending on the specific degree desired, students will complete either a comprehensive exam with required laboratory course work (MA degree) or a written thesis project with an oral defense as well as required coursework (MS degree).

Degree requirements for the MS degree in Marine Science are:

- Four- course core: MSC 501 Advanced Marine Ecology, MSC 502 Chemical Oceanography, MSC 503 Geologic and Littoral Processes, and MSC 504 Advanced Physical Oceanography.

- A thesis proposal approved by the student's thesis committee. The thesis committee will be composed of minimum of 3 individuals, including the Student's Thesis Advisor, and two other members, one of which may be from outside the Department or University.

- An oral thesis defense must be completed in the form of a seminar open to the general public.

The student's thesis committee must be present, may require further oral questioning after the seminar, and must approve the defense or require a repeat defense until approved. It is the responsibility of the thesis advisor to then notify the MSC Graduate Program Director and Chair of the Department of Biology and Marine Science of successful completion of thesis requirements.

- The MS degree will be approved upon submission of a final written thesis approved by the Student's thesis committee. The MSC Graduate Program Director, or Chair of the Department of Biology and Marine Science will notify the Registrar of successful completion of thesis requirements.

- A total of 30 SH graduate-level work (500 or above) with approval of the student's graduate advisor One semester of practical experience as a teaching assistant in an undergraduate marine science or biology laboratory.

- All MS students shall maintain continuous enrollment in the graduate program until all degree requirements are met. It is the responsibility of the thesis advisor to ensure continuous enrollment until graduation. MA students are not required to be enrolled in Summer Terms.

Degree requirements for the MA degree in Marine Science are:

- Four- course core: MSC 501 Advanced Marine Ecology, MSC 502 Chemical Oceanography, MSC 503 Geologic and Littoral Processes, and MSC 504 Advanced Physical Oceanography.

- A laboratory experience of not less than 6 SH approved by the graduate advisor.

- A total of 30 SH graduate-level work (500 or above) with approval of the student's graduate advisor

- Passing a written comprehensive examination to be taken at the completion of all degree coursework.

- One semester of practical experience as a teaching assistant in an undergraduate marine science or biology laboratory.

If a student receives lower than a B in a core course, the student may retake one course. Two courses with grades below "B" (3.0) can result in the student being removed from the graduate program. Students are encouraged to complete their degree requirements within three years.

Core Courses

MSC 501 Advanced Marine Ecology (3)
Three hours lecture per week. An advanced course that examines the biological processes in oceanic and coastal waters. Emphasis is on empirical and theoretical concepts of marine ecosystem dynamics, primary and secondary production and detrital cycling.

MSC 502 Chemical Oceanography (3)
Three hours lecture per week. Examines the role of the oceans in the major global biogeochemical cycles of carbon, sulfur, nutrients, gases and trace elements. Studies include reaction rates, chemical speciation, equilibria, solubility, oxidation-reduction, absorption, complexation, and their effects on the composition of seawater and the transfer of substances at the Earth's surface.

MSC 503 Geologic and Littoral Processes (3)
Three hours lecture per week. This course is a comprehensive study of the origin and development of the major structural features of the ocean basins and the continental margins. Discussion of the techniques used in obtaining geologic data and the interpretation of sedimentary processes, vulcanism, and the stratigraphy of the ocean basins.

MSC 504 Advanced Physical Oceanography (3)
Three hours lecture per week. Course is an in depth examination of the geographic and hydrodynamic aspects of oceanography, with emphasis on estuaries, along with the physical properties of seawater and theories and methods involved in ocean currents, air-sea interaction, waves, and tides.

Total: *12 Semester Hours (SH)*

Elective Courses

MSC 510 Graduate Seminar (1)
One hour per week. Seminar will be held on marine related topics changing each semester. Each student will be required to give at least one seminar. May be repeated for credit and will be taken on a Pass/Fail basis

MSC 520 Estuarine and Coastal Ecology (3)
Three hours lecture per week. Course will focus on estuarine ecology, including estuarine kinematics and dynamics; classification of estuaries; estuarine circulation and mixing.

MSC 530 Biology of Marine Animals (3)
Three hours lecture per week. Course will include the biology, ecology and physiology of marine animals, including invertebrates and vertebrates, with a discussion of adaptations and evolution in a marine environment.

MSC 540 Advanced Marine Mammal Biology (3)
Three hours lecture per week. This course is a comprehensive study of marine mammal taxa with primary focus on cetacea and sirenia. Topics will include evolutionary history, taxonomy, anatomic and physiologic adaptations to the marine environment, population dynamics, behavioral ecology, conservation and legal issues. The role of marine mammals as biomonitors of environmental health is included.

MSC 550 Marine Microbiology (3)
Three hours lecture per week. This course focuses on the bacteria, archaea, protists, and viruses that play fundamental roles in marine systems. The organisms and their processes as they relate to biogeochemical cycling, food webs, pollutants and human health will be discussed. Biodiversity and evolution, as they relate to ecological considerations will also be addressed. Peer-reviewed research and review articles will form the basis of the readings.

MSC 560 Advanced Ichthyology (4)
Three hours lecture and three laboratory per week. Graduate standing or instructor permission. The course will cover anatomy, physiology, reproduction and ecology of bony and cartilaginous fish. It will also review systematics and taxonomy of fish and how evolution influenced the formation of major groups of fish. Students will also gain lab and field experience developing skills in data collection, and gears associated with the collection and preservation of fish.

MSC 595 Laboratory Studies in Marine Science (3)

Three hours laboratory per week. Basic and applied techniques and research methods to understand various marine science related topics. These techniques will be learned and utilized during the course while completing an appropriate research project. Course may be repeated when topics change for up to 6 SH of credit towards degree.

MSC 601 Climate Science (3)
Three hours lecture per week. This course covers the physical, biological, and chemical systems that govern the climate of earth. Students will learn the fundamental laws and relationships that affect climate shifts, examine dynamic climate equilibrium, study the historical proxy record of past climate, and examine the modern literature of climate science.

MSC 610 Ocean & Coastal Environmental Law (3)
Three hours lecture per week. Course will examine a number of emerging ocean and coastal policy issues. Among the policy issues are those relating to oil, gas, and alternative energy facilities and equipment in coastal or ocean waters, the privatization of public waters, the impact of rising sea levels upon ocean beaches and estuarine shorelines, beach nourishment and shoreline protection, development setback lines, the use of ocean outfalls to dispose of wastewater, and the future role of the Coastal Resources Commission. Course will examine these and other emerging policy issues and the governing state and federal legal regime.

MSC 613 Aquatic Toxicology (3)
Three hours lecture per week. Pre-requisite: Graduate level status. This course is an advanced, in-depth examination of the major classes of contaminants in aquatic environments and their interactions with aquatic organisms. Methods of toxicity testing, chemical fate and interactions in aquatic systems, and mechanisms of toxicity will be discussed. This course will give students an opportunity to integrate and apply their knowledge from multiple disciplines with a focus on laboratory and field toxicological techniques. Students will also develop data analysis, critical thinking, writing, and presentation skills.

MSC 620 Advanced Marine Botany (3)
Three hours lecture per week. Course is a survey of marine plants including phytoplankton, algae, and coastal plants. The course will focus on the ecology, diversity, and physiology of these organisms, and ways to study the different groups in the field.

MSC 630 Ocean and Coastal Observation Systems (3)
Three hours lecture per week. Principles of instruments used in oceanographic research, introduction to electronics, and applications of instrument measurements will be examined. Emphasis will vary from CTD profilers, current meters, radiometry and chemical measurement. Course will include introduction to using observational oceanographic data, with hands-on practice in scientific programming for data analysis.

MSC 640 Ecology of the St. Johns River (3)
Three hours lecture per week Course will examine the geologic history and ecology of the St. Johns River, both economically and environmentally, its estuaries and upland regions. From the early settlers along the St. Johns to the modern port, we'll look back with some detail into the why's and how's of their impact on the St. Johns River. We will also examine how nature influenced the development of northeast Florida.

MSC 660 Experimental Design/Biostatistics (3)
Three hours lecture per week. Course will examine the mathematical methods for the analysis of biological, chemical, and physical data from the marine environment - experimental design, parametric non-parametric and re-sampling statistics. Basic design of experiments and field sampling, including

random and systemic sampling, subsampling, survey techniques, single and multifactor experiments using randomized, nested, and blocked experimental designs, and data analyses.

MSC 670 Advanced Aquaculture (3)
Three hours lecture per week. The course provides an introduction to the principles upon which viable aquaculture practices are based. Different culture systems, levels of intensity and environments will be discussed. Lectures will contain background notes and information on specific topics like water quality, nutrition, disease, and agri-business. Reference data, exercises and peer reviewed bibliographical sources will be provided as part of the required readings in this applied ecology course.

MSC 690 Contemporary Issues in Marine Science (var.1-6)
One to six lecture and/or laboratory per week. Course will be on selected topics and current issues in marine science. Course can be offered on an as-needed basis for topics not included in the curriculum when faculty availability or opportunities occur. May be repeated for credit when topics change, but no more than 6 SH count towards degree requirement.

MSC 695 Advanced Laboratory Studies in Marine Science (3)
Three hours laboratory per week. Advanced and applied techniques and research methods to understand various marine science related topics. These techniques will be learned and utilized during the course while completing an appropriate research project. May be repeated for credit when topics change, but no more than 6 SH count towards degree requirement

MSC 699 Thesis Preparation and Research (varies 1-6 SH)
May be repeated as needed but only 6 SH to count towards degree completion.

Teaching Assistant Requirements

All MSC graduate students are required to serve at least one semester as a teaching assistant in an undergraduate marine science or biology laboratory course. To fulfill this requirement, graduate students will be assigned for a semester to a specific undergraduate laboratory course where they will accomplish the following skills: 1) attend and participate in TA training, 2) give one lecture (full class time) with topic and timing to be mutually agreed upon with professor of record, 3) attend lectures as required by professor, 4) attend and assist running all labs, 5) have primary responsibility for two labs, 6) grade lab reports for those two labs (professor will assign final grade on these assignments), 7) be properly prepared for all labs, and 8) assist with set up and clean up each week as necessary. Students must fulfill these requirements to the satisfaction of the professor of record or may be required to repeat the requirement during a following semester. Most students will likely be assigned to the MSC laboratory courses although some may be assigned to other undergraduate courses (dependent upon approval from the Department Chair, Course Instructor and Thesis Advisor) as long as they are able to accomplish the above-mentioned skills.

Comprehensive Examinations (MA only)

Scheduling of comprehensive exams will be done by the MSC Graduate Review Committee in conjunction with relevant faculty members. The comprehensive exam will be in written format with approximately one-half day allotted per exam. It will consist of seven questions--one from each of the core courses, one from each of two elective courses (to be selected by the student), and one multiple subject comprehensive question. The comprehensive exam will be evaluated by the core course instructors. Students who do not pass the comprehensive exam will be required to re-take the section of the exam they failed by the end of the following semester. If they fail again they must re-take the course associated with the sections (s) they failed and receive a “B” or better. If the student would like to appeal the exam scores they can request that the Graduate Review Committee review the exam and assess whether the student was dealt with unfairly. If the student chooses to not take the course, or fails to achieve a B or better, they will be terminated from the program with no degree.

Financial Assistance

Applicants and students may apply for financial assistance from the Financial Aid Department at Jacksonville University. Limited Teaching and Graduate Assistantship may be available. Please contact the Graduate Program Director for additional information. However, there may be adjunct teaching positions contingent upon availability and approval of the Graduate Review Committee and Chair of the Biology and Marine Science Department.

Independent Investigator Research Grant funds

These are funds that have been awarded to a single investigator or multiple investigators by an outside agency (federal, state, foundation, or private) to conduct research on a particular topic. These funds are directed toward the specific research goals of an individual or team and are governed by said individuals. They are mostly in the form of narrowly focused research assistantships associated with one of the principal investigators. They are advertised and managed exclusively by the faculty member funded by the project.

Thesis Proposal (MS only)

The thesis proposal must be presented to and approved by the thesis committee in the form of a formal written document and an oral presentation. This must be done by the end of the 3rd semester of study (e.g. 1st Monday of May for those entering in the fall semester) for full-time students. The timeline for part-time students is at the discretion of the advisor and advisory committee. The proposal should clearly describe the problem or questions to be addressed by the research with clearly stated hypotheses, the methodology to be used, a preliminary literature review, and a timeline for project completion. A statement of needed equipment, supplies, and travel required for the project and how these items will be funded should also be included. This document is not meant to restrict the student from pursuing different avenues as opportunities arise within their research, but to provide a clear initial guideline for the committee's input and approval. Limited funding maximum per semester may be available through the Biology and Marine Science Department for supplies, equipment, travel, fuel, etc. Students should request these funds in their Thesis Proposal. Institutional Animal Care and Use Committee (IACUC) approval may be required if research is conducted on live vertebrate animals in research. Please refer to Institutional Animal Care and Use Committee for forms and guidance.

Thesis Defense (MS only)

The thesis defense shall consist of two parts: 1) an oral presentation open to the public with a question and answer period; followed by 2) a thesis evaluation attended only by the committee members and the student (The MSC Graduate Program Director and Department Head may also attend). The oral presentation must be advertised at least two weeks in advance and will not occur during finals week. The purpose of the private thesis defense is mainly, but not exclusively, to address any outstanding concerns based on the oral presentation, to review substantive changes to the penultimate draft submitted before the defense; and to ask questions that will help determine the readiness of the student to graduate. The committee can set future writing deadline(s) to assist student in graduating on time. Scheduling a defense before the graduation deadline does not ensure that the candidate will graduate as all committee members must sign the thesis cover page attesting that they approve the final written version. The thesis defense will be graded as Pass, Pass with Revisions, Pass with Major Revisions or Fail.

Thesis and Defense Deadlines

The thesis defense which includes a public presentation of thesis in seminar format followed by a thesis committee meeting must be scheduled no later than six weeks prior to the date graduating students' grades are due in the Registrar's office (see academic calendar).

A draft of the thesis must be submitted to thesis committee members no later than two weeks prior to the scheduled thesis defense date.

The final thesis (including Thesis Signature Page) should be submitted with the thesis defense approval form to both the thesis advisor and the MSC Graduate Program Coordinator. Electronic copy of the signed thesis (.pdf file) will be submitted to the library.

References

McMillan, V.E. 2016. Writing Papers in the Biological Sciences: Fourth Edition. Bedford/St. Martin's. Boston, MA

Appendix 1A. Guidelines for Thesis

(Modified from Mathematics Department Document at Jacksonville University)

McMillan (2016) is to be used in conjunction with the following guidelines to demonstrate referencing style, levels of headings, and proper ways of including direct quotations in the paper. Students should refer to the McMillan (2016) for additional information about grammar, punctuation, spelling out of numbers and use of numerals, use of abbreviations, and development of tables or figures.

1. Each paper is to have a formal Title Page (see example that follows). Page numbering starts with the Title Page but no page number appears on this page.

2. Pagination: All page numbers are to appear 1/2 inch from the edges of the page. Only the page number appears (so no use of "Page," etc.). No Running Headers is used.

   Lowercase Roman numerals are used as page numbers for the following front matter in the listed order. The Signature Page (see example that follows) is the first page that appears with a page number, namely, page ii.

   a) Title Page (no page number appears),
   b) Signature Page,
   c) Abstract (of 350 words or less),
   d) Acknowledgements Page (optional), and
   e) Table of Contents, which uses Leaders.

   Starting with the Introduction and following through any appendices and the reference list, Hindu/Arabic numbers (1, 2, etc.) are used with the Introduction as page 1 (which appears).

3. Margins: Margins are to be at least 1 inch and no more than 1.25 inches on all sides. Left and right margins are to be equal. Text should be left-justified only. This means that the right margin may appear irregular. If a word is too long to be completed on one line, it should not be hyphenated.

4. Size and type of font style: Size should be 11-12 characters per inch. The font should be clean and easy to read (e.g., Calibri, Arial, Times New Roman). A consistent font style and font size should be used throughout the thesis.

5. Spacing: Double spacing is to be used for the body of the paper. Single spacing may be used for table titles and headings, figure captions, within references (with double spacing between references), and long quotations.

6. Headings within the paper: Space between headings and the first line of text in that section. To determine the level of headings required, the student should first develop an outline of the paper. Count the number of levels anticipated, and then see McMillan (2016) for further guidance.

7. Quotations: When more than five words in a row are taken directly from another source, the original author or speaker must be given credit. For ways to properly cite quotations of (1) less than and (2) greater than 40 words, see the McMillan (2016). See the McMillan (2016)

for methods of quoting and referencing internet or other electronic sources.

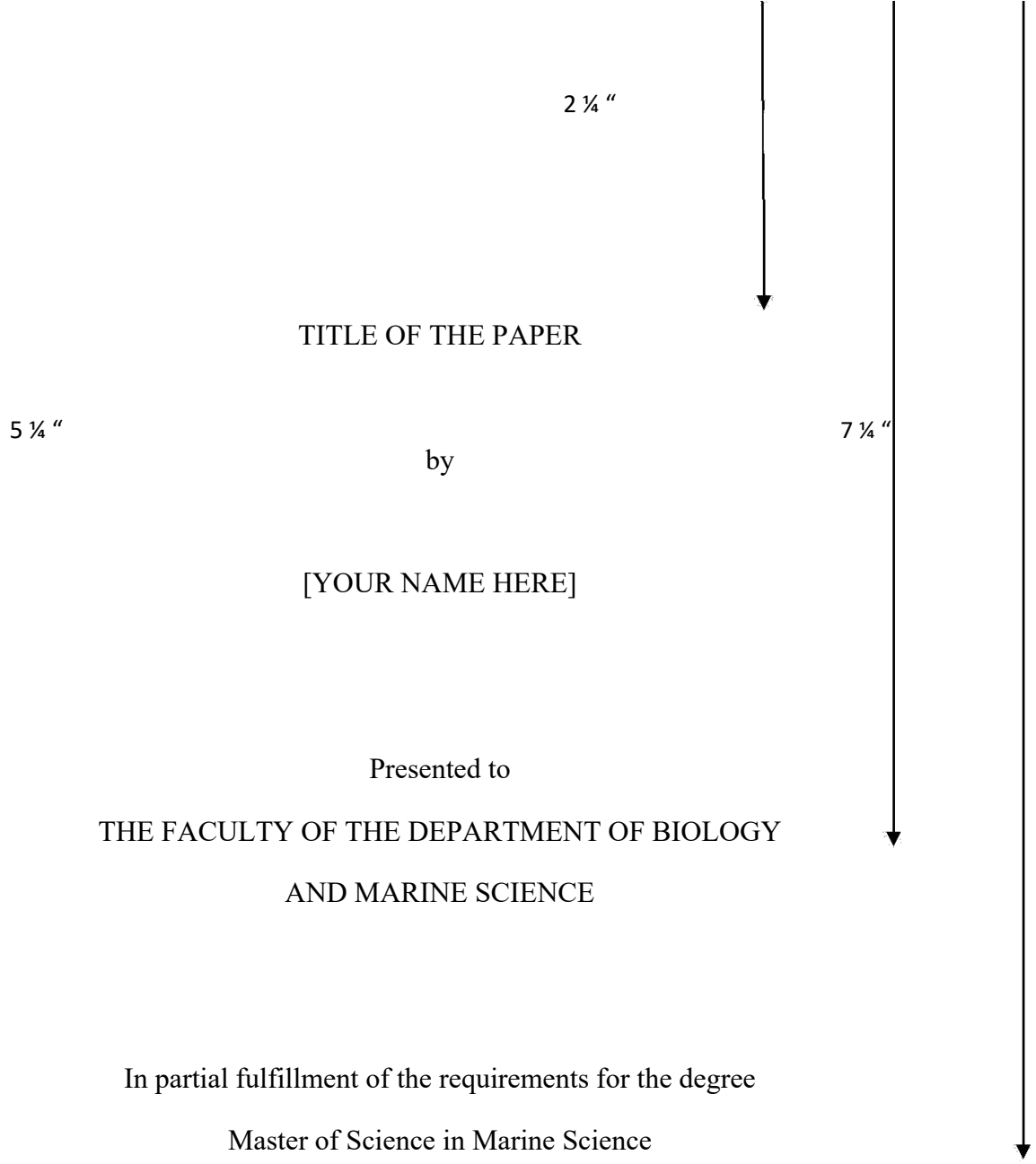
8. Referencing primary and secondary references in the text according to CSE Style manual: See the McMillan (2016).

9. Placement of tables, graphs, and other figures: These items may appear where appropriate in the text of the thesis after the first mention of the table, graph or other figure.

10. Literature Cited: See the McMillan (2016) for format.

11. Corrections: All papers are to be carefully proofread prior to submission to the thesis advisor and the thesis committee. The thesis advisor is NOT the student's editor. Make an appointment with the JU Writing Center, if appropriate.

12. Plagiarism: All completed theses can be submitted by the MSC Graduate Program Director to Turnitin.com for a plagiarism check if necessary.



TITLE OF THE PAPER

by

[YOUR NAME HERE]

Presented to

THE FACULTY OF THE DEPARTMENT OF BIOLOGY

AND MARINE SCIENCE

In partial fulfillment of the requirements for the degree

Master of Science in Marine Science

JACKSONVILLE UNIVERSITY

COLLEGE OF ARTS AND SCIENCES

[DATE OF GRADUATION]

Appendix 1B.
Thesis Approval Form

Master of Science in Marine Science

Department of Biology and Marine Science

Jacksonville University

The members of the Committee approve the thesis of [your name here], titled "[your title here]," defended on [date].

_____

[Thesis advisor's name] Thesis Advisor

_____

[Committee member's name] Committee Member

_____

[Committee member's name] Committee Member

Approved on _____

_____

Chair, Department of Biology and Marine Science