UNIVERSITY OF GEORGIA

Marine Sciences - MS

Marine Sciences - MS

Cycles included in this report:
Oct 1, 2017 to Sep 30, 2018
Oct 1, 2018 to Sep 30, 2019
Oct 1, 2019 to Sep 30, 2020

Program Name: Marine Sciences - MS

Reporting Cycle: Oct 1, 2017 to Sep 30, 2018

Academic Program Coordinator

Christof Meile

Description of Program

The Department of Marine Sciences offers a graduate degree program at the M.S. level. Active research covers a wide range of topics, including Biological, Chemical, Geological and Physical Oceanography, Microbial Ecology, Climate Change, and Biogeochemistry.

Outcome Outcome #1

Students demonstrate knowledge of the fundamentals of Biological, Chemical, and Physical Oceanography

Measure Measure 1A - Direct

Collective assessment by the instructors of the core courses (Biological, Chemical, Physical Oceanography) of whether each student taking these courses exceeds/meets/does not meet the expected level of knowledge in these core areas.

Threshold for success (if available)

80% of the students must earn a minimum of ‘meets expectation’ in each topic area

Data Collected

Performance data was collected in the core courses MARS 8010 (Biological Oc.), MARS 8020 (Chemical Oc.) and MARS 8030 (Physical Oceanography). This data included specific questions on assignments, midterms and final exams, quality of class room participation, and a comparison between questions asked at the beginning and the end of the course (pre/post analysis)

Files:

MS 17-18 1A

Analysis of Data

The instructors of the core courses met and discussed the performance and learning outcomes of each student in the 3 respective courses.
Each student was assigned an exceeds/meets/does not meet evaluation based on the data collected.
In Chemical Oceanography 1 out of 1 student met or exceeded expectations, in Biological Oceanography 2 out of 2 students met or exceeded expectations, in Physical Oceanography 1 out of 3 students met or exceeded expectations, 1 did not meet expectations, and 1 has received an incomplete.
Thus, the threshold of 80% meet/exceeds was achieved in 2 of the 3 subdisciplines.

Improvement Based on Analysis

Assessment data and summary information was distributed to the Marine Sciences faculty, soliciting input on program improvements.
With thresholds for success met in all but one of the subdisciplines of oceanography, no immediate need for improvements in pedagogy was identified.
Missing the 80% mark in physical oceanography was attributed to the low class size, and reflects the challenges students with weaker quantitative skills face. This is being addressed through the required course on Quantitative Methods, specifically designed to improve students' mathematical skills in relevant to Marine Sciences.

Measure Measure 1B - Indirect

Student self-assessment

Threshold for success (if available)

Self-assessment of an overall 80% satisfactory knowledge in Oceanography

Data Collected

The student annual feedback form contains a self-assessment of their knowledge of the fundamentals of Biological, Chemical, and Physical Oceanography and allows them to indicate activities that increased knowledge in these areas.

Analysis of Data

The data will be analyzed annually to assess the level in the self-assessed knowledge of our graduate cohorts, the trend over time and to identify activities that are successful in increasing knowledge.
THIS IS A NEW MEASURE, INTRODUCED IN RESPONSE TO THE 2017 PROGRAM REVIEW. THE DATA WILL BE COLLECTED FOR THE FIRST TIME DURING THE 2018/19 ACADEMIC YEAR AND HENCE THE MEASURE IS NOT BEING REPORTED ON YET.

Improvement Based on Analysis

Instructors of core courses will identify actions to improve knowledge in key areas of oceanography.

Outcome Outcome #2

Students demonstrate the ability to master field, laboratory, theoretical, and/or computational techniques necessary to contribute to knowledge in their area of research

Measure Measure 2A - Direct

Satisfactory progress in program

Threshold for success (if available)

80% or more of the students are considered to make satisfactory progress

Data Collected

Each year, each student's major advisor submits a report on the student's progress, commenting on research activity, progress in the last 12 months, strengths and weaknesses and goals for the next 12 months. This includes a summary assessment of satisfactory or unsatisfactory progress towards graduation.

Files:

MS 17-18 2A

Analysis of Data

The data is analyzed to track progress that meets the program standard. 0 out of 14 students made unsatisfactory progress. This exceeds the threshold for success.

Improvement Based on Analysis

Assessment data and summary information was distributed to the Marine Sciences faculty, soliciting input on program improvements.
The data revealed that there were no students who made unsatisfactory progress during this assessment cycle, and no immediate need for improvements was identified.
The graduate coordinator and graduate coordinator assistant will continue to reach out to the graduate students to identify and address obstacles for their progress through the program. We will hold in-person meetings between each student and the graduate coordinator to help identify both programmatic and individual challenges at an early stage.

Measure Measure 2B - Indirect

Student self-assessment

Threshold for success (if available)

n/a

Data Collected

The student annual feedback form contains a self-assessment of field, laboratory, theoretical, and/or computational skills, where applicable.

Analysis of Data

The data will be analyzed annually to assess the level in the self-assessed abilities of our graduate cohorts to master these skills.
THIS IS A NEW MEASURE, INTRODUCED IN RESPONSE TO THE 2017 PROGRAM REVIEW. THE DATA WILL BE COLLECTED FOR THE FIRST TIME DURING THE 2018/19 ACADEMIC YEAR. HENCE THE MEASURE IS NOT BEING REPORTED ON YET.

Improvement Based on Analysis

Input from the students committee will be requested to identify ways to address perceived weaknesses.

Outcome Outcome #3

Students demonstrate ability to communicate concepts and results to expert and non-expert audiences

Measure Measure 3A - Direct

Performance in oral presentations

Threshold for success (if available)

80% of the students earn a rating of 5 out of 10 or higher on all rubrics related to oral presentation

Data Collected

Faculty normally complete surveys of a student’s oral communication skills at the defense; presentations with students as lead authors are reported.

Analysis of Data

The data will be analyzed to assess the performance trends among Marine Science graduate students.
THIS MEASURE IS NOT BEING REPORTED ON IN THIS CYCLE

Improvement Based on Analysis

Additional opportunities for oral presentation skill development, e.g. seminars, lab group meetings, etc., may be added.

Measure Measure 3B - Direct

Performance in written communication

Threshold for success (if available)

80% of the students earn a rating of 5 out of 10 or higher on all rubrics related to written communication

Data Collected

Faculty normally complete surveys of a student’s written communication skills reflected in their thesis at the defense.

Analysis of Data

The data will be analyzed to assess the performance trends among Marine Science graduate students.

THIS MEASURE IS NOT BEING REPORTED ON IN THIS CYCLE

Improvement Based on Analysis

Possibility to offer new or encourage enrollment in writing intensive courses.

Outcome Outcome #4

Students demonstrate ability to identify a research problem, design, execute, complete and defend research that makes a contribution to scientific knowledge in marine science

Measure Measure 4A - Direct

Documentation of the ability to identify a novel research project and to develop a tractable plan to carry out the research

Threshold for success (if available)

80% approval of thesis proposal within the first 2 years in the program

Data Collected

Thesis proposal approved by the student's committee is recorded.

Analysis of Data

Three of five students who entered the program by Fall 2016 have submitted an approved thesis proposals within the two year time frame used as a guideline for progress.

Improvement Based on Analysis

Assessment data and summary information was distributed to the Marine Sciences faculty, soliciting input on program improvements.
The data indicated that improvements are needed. As a result, we now require that students and advisors lagging behind meeting program milestones have to provide a letter outlining how these milestones will be met in the future.

Measure Measure 4B - Indirect

Submission and success of fellowship and competitive grant applications

Threshold for success (if available)

Data Collected

Two students received highly competitive federal graduate fellowships (NOAA, NASA); one won a poster award, and another one was selected for a summer school on physics of the ocean.

Files:

MS 17-18 4B

Analysis of Data

The external awards, and in particular the successful federal fellowships are indicative of a highly competitive student cohort.

Improvement Based on Analysis

Assessment data and summary information was distributed to the Marine Sciences faculty, soliciting input on program improvements.
The current success by our students to secure external funding suggests that no immediate improvement needed. We will keep encouraging and supporting our students to compete for fellowship and external funding.
One means of doing so is by offering professional development courses that hone proposal writing skills. We will continue to offer professional development courses that hone proposal writing skills.

Additional Narrative (if applicable)

Procedure: The entire faculty was able to contribute to the definition of the above SLOs, including the measures, and voted on their acceptance. The Graduate Coordinator, Graduate Coordinator Assistant and the Department Head will keep track of SLO data assessment and remedial actions discussed at faculty meetings.

Expanded narrative: There are several indicators of the quality of our graduate program that transcend the above SLOs, including student contributions to academic research, excellence in teaching and outreach and their ability to compete for jobs. While success in these areas are commonly tied to the SLOs, external factors and/or personal preferences can also strongly impact these measures. Hence, they are not explicitly incorporated in the above SLOs, but are guiding the continued improvement of our graduate program.

1. Documented contribution to primary academic research
Peer-reviewed publications are a cornerstone of scientific success, productivity and impact. Thus, we collect information on student participation in co-authored publications and presentations at scientific meetings, or other contributions to scientific work. The number of scientific publications and presentations by the graduate students in our program will be tracked over time. Lack of publications and/or presentations by individual students will be addressed by the student's committee by discussing challenges to increased productivity and/or options to present the student's research

2. Participation in teaching, service and outreach activities
The ability to effectively communicate scientific results and importance to a broad audience outside marine sciences is a critical component of student training and knowledge gained. Thus, we collect (self-reported) information on service and outreach activities of our graduate students. In addition, service in teaching will be recorded, and we will carry out an annual survey of teaching experience. Data will be analyzed to assess trends in service and teaching activities, and improvements based on the data analysis may include possible addition of incentives to participate in teaching, service and outreach activities

3. Job placement
The ability to find fulfilling employment after graduate school is central to the long-term success of our program. Thus, we will seek information on job placement of our graduates upon graduation, and will inquire with our alumni on their employment and career choices at least once in the 7 year program evaluation cycle. We will assess alumni employment by sectors and skills required and reach out to our alumni to obtain input on perceived strengths and weaknesses of our program in the light of their work environment. Improvements based on analysis may include possible adaptation of curriculum to address particular skills needed in the job market.

In this reporting cycle, we are not reporting on these additional measures.

Feedback

Files:

LOA Feedback Rubric_Marine Sciences â€“ MS

Program Name: Marine Sciences - MS

Reporting Cycle: Oct 1, 2018 to Sep 30, 2019

Academic Program Coordinator

Renato Castelao

Description of Program

The Department of Marine Sciences offers a graduate degree program at the M.S. level. Active research covers a wide range of topics, including Biological, Chemical, Geological and Physical Oceanography, Microbial Ecology, Climate Change, and Biogeochemistry.

Outcome Outcome #1

Students demonstrate knowledge of the fundamentals of Biological, Chemical, and Physical Oceanography

Measure Measure 1A - Direct

Collective assessment by the instructors of the core courses (Biological, Chemical, Physical Oceanography) of whether each student taking these courses exceeds/meets/does not meet the expected level of knowledge in these core areas.

Threshold for success (if available)

80% of the students must earn a minimum of ‘meets expectation’ in each topic area

Data Collected

Performance data was collected in the core courses MARS 8010 (Biological Oc.), MARS 8020 (Chemical Oc.) and MARS 8030 (Physical Oceanography). This data included specific questions on assignments, midterms and final exams, quality of class room participation, and a comparison between questions asked at the beginning and the end of the course (pre/post analysis)

Files:

MS 18-19 1A

Analysis of Data

The instructors of the core courses met and discussed the performance and learning outcomes of each student in the 3 respective courses.
Each student was assigned an exceeds/meets/does not meet evaluation based on the data collected.
In Chemical Oceanography 3 out of 3 students met or exceeded expectations. In Biological Oceanography 2 out of 3 students met or exceeded expectations, 1 did not meet expectations. In Physical Oceanography 1 out of 2 students met or exceeded expectations, 1 did not meet expectations.
Thus, the threshold of 80% meet/exceeds was achieved in 1 of the 3 subdisciplines.

Improvement Based on Analysis

Assessment data and summary information was distributed to the Marine Sciences faculty, soliciting input on program improvements.
Missing the 80% mark in biological and physical oceanography was attributed to the low class size, and reflects the challenges students with weaker quantitative skills face. The recommendation for the one student who did not meet expectations was to retake the biological oceanography class in Fall 2019.

Measure Measure 1C - Indirect

Student self-assessment

Threshold for success (if available)

Self-assessment of an overall 80% satisfactory knowledge in Oceanography

Data Collected

The student annual feedback form contains a self-assessment of their knowledge of the fundamentals of Biological, Chemical, and Physical Oceanography and allows them to indicate activities that increased knowledge in these areas.

Files:

MS 18-19 1C

Analysis of Data

According to their self-assessment, 83% of the students presented satisfactory knowledge in biological oceanography, 80% in chemical oceanography and 100% in physical oceanography. Thus, the threshold of 80% was achieved in all cases. The data will be analyzed annually to assess the level in the self-assessed knowledge of our graduate cohorts, the trend over time and to identify activities that are successful in increasing knowledge.

Improvement Based on Analysis

With thresholds for success met in all subdisciplines of oceanography, no immediate action was deemed necessary. Instructors of core courses will continue to identify actions to improve knowledge in key areas of oceanography.

Outcome Outcome #2

Students demonstrate the ability to master field, laboratory, theoretical, and/or computational techniques necessary to contribute to knowledge in their area of research

Measure Measure 2A - Direct

Satisfactory progress in program

Threshold for success (if available)

80% or more of the students are considered to make satisfactory progress

Data Collected

Each year, each student's major advisor submits a report on the student's progress, commenting on research activity, progress in the last 12 months, strengths and weaknesses and goals for the next 12 months. This includes a summary assessment of satisfactory or unsatisfactory progress towards graduation.

Files:

MS 18-19 2A

Analysis of Data

The data is analyzed to track progress that meets the program standard. 0 out of 7 students made unsatisfactory progress. This exceeds the threshold for success.

Improvement Based on Analysis

Assessment data and summary information was distributed to the Marine Sciences faculty, soliciting input on program improvements.
The data revealed that there were no students who made unsatisfactory progress during this assessment cycle, and no immediate need for improvements was identified.
The graduate coordinator and student affairs professional will continue to reach out to the graduate students to identify and address obstacles for their progress through the program. We are currently holding in-person meetings between each student and the graduate coordinator to help identify both programmatic and individual challenges at an early stage (individual meetings began on September 11th).

Measure Measure 2B - Indirect

Student self-assessment

Threshold for success (if available)

n/a

Data Collected

The student annual feedback form contains a self-assessment of field, laboratory, theoretical, and/or computational skills, where applicable.

Files:

MS 18-19 2B

Analysis of Data

According to their self-assessment, 100%, 60%, 60% and 67% of the students presented satisfactory field, laboratory, theoretical and computational skills, respectively. The data will be analyzed annually to assess the level in the self-assessed abilities of our graduate cohorts to master these skills.

Improvement Based on Analysis

Input from the students committee will be requested to identify ways to address perceived weaknesses. The graduate coordinator is also meeting individually with all students to identify weaknesses, so that these can be addressed.

Outcome Outcome #3

Students demonstrate ability to communicate concepts and results to expert and non-expert audiences

Measure Measure 3A - Direct

Performance in oral presentations

Threshold for success (if available)

80% of the students earn a rating of 5 out of 10 or higher on all rubrics related to oral presentation

Data Collected

Six students completed their thesis defense. Faculty normally complete surveys of a student’s oral communication skills at the defense; presentations with students as lead authors are also reported.

Files:

MS 18-19 3A

Analysis of Data

According to the faculty surveys, 100% of the students earned a rating of 5 out of 10 or higher. Thus, the threshold of 80% was achieved. The data will be analyzed to assess the performance trends among Marine Science graduate students.

Improvement Based on Analysis

Additional opportunities for oral presentation skill development, e.g. seminars, lab group meetings, etc., may be added.

Measure Measure 3B - Direct

Performance in written communication

Threshold for success (if available)

80% of the students earn a rating of 5 out of 10 or higher on all rubrics related to written communication

Data Collected

Six students completed their thesis defense. Faculty normally complete surveys of a student's written communication skills reflected in their thesis at the defense.

Files:

MS 18-19 3B

Analysis of Data

According to the faculty surveys, 100% of the students earned a rating of 5 out of 10 or higher. Thus, the threshold of 80% was achieved. The data will be analyzed to assess the performance trends among Marine Science graduate students.

Improvement Based on Analysis

Possibility to offer new or encourage enrollment in writing intensive courses. A synthesis skills course on "Proposal writing and review" is being offered this semester (Fall 2019; MARS 8190).

Outcome Outcome #4

Students demonstrate ability to identify a research problem, design, execute, complete and defend research that makes a contribution to scientific knowledge in marine science

Measure Measure 4A - Direct

Documentation of the ability to identify a novel research project and to develop a tractable plan to carry out the research

Threshold for success (if available)

80% approval of thesis proposal within the first 2 years in the program

Data Collected

Thesis proposal approved by the student's committee is recorded.

Analysis of Data

One of four students who entered the program by Fall 2017 have submitted an approved thesis proposal within the two year time frame used as a guideline for progress.

Improvement Based on Analysis

Assessment data and summary information was distributed to the Marine Sciences faculty, soliciting input on program improvements.
The data indicated that improvements are needed. We have recently begun requiring that students and advisors lagging behind meeting program milestones provide a letter outlining how these milestones will be met in the future.

Measure Measure 4B - Indirect

Submission and success of fellowship and competitive grant applications, and awards received

Threshold for success (if available)

Data Collected

One student received a highly competitive federal graduate fellowship (NOAA); one student received the Osborn Graduate Scholarship; one won a poster award.

Files:

MS 18-19 4B

Analysis of Data

The external awards, and in particular the successful federal fellowship application, are indicative of a highly competitive student cohort.

Improvement Based on Analysis

Assessment data and summary information was distributed to the Marine Sciences faculty, soliciting input on program improvements.
The current success by our students to secure external funding suggests that no immediate improvement needed. We will keep encouraging and supporting our students to compete for fellowship and external funding.
One means of doing so is by offering professional development courses that hone proposal writing skills. A synthesis skills course on "Proposal writing and review" is being offered this semester (Fall 2019; MARS 8190).

Additional Narrative (if applicable)

Procedure: The entire faculty was able to contribute to the definition of the above SLOs, including the measures, and voted on their acceptance. The Graduate Coordinator, Graduate Coordinator Assistant and the Department Head will keep track of SLO data assessment and remedial actions discussed at faculty meetings.

Expanded narrative: There are several indicators of the quality of our graduate program that transcend the above SLOs, including student contributions to academic research, excellence in teaching and outreach and their ability to compete for jobs. While success in these areas are commonly tied to the SLOs, external factors and/or personal preferences can also strongly impact these measures. Hence, they are not explicitly incorporated in the above SLOs, but are guiding the continued improvement of our graduate program.

1. Documented contribution to primary academic research
Peer-reviewed publications are a cornerstone of scientific success, productivity and impact. Thus, we collect information on student participation in co-authored publications and presentations at scientific meetings, or other contributions to scientific work. The number of scientific publications and presentations by the graduate students in our program will be tracked over time. Lack of publications and/or presentations by individual students will be addressed by the student’s committee by discussing challenges to increased productivity and/or options to present the student’s research

2. Participation in teaching, service and outreach activities
The ability to effectively communicate scientific results and importance to a broad audience outside marine sciences is a critical component of student training and knowledge gained. Thus, we collect (self-reported) information on service and outreach activities of our graduate students. In addition, service in teaching will be recorded, and we will carry out an annual survey of teaching experience. Data will be analyzed to assess trends in service and teaching activities, and improvements based on the data analysis may include possible addition of incentives to participate in teaching, service and outreach activities

3. Job placement
The ability to find fulfilling employment after graduate school is central to the long-term success of our program. Thus, we will seek information on job placement of our graduates upon graduation, and will inquire with our alumni on their employment and career choices at least once in the 7 year program evaluation cycle. We will assess alumni employment by sectors and skills required and reach out to our alumni to obtain input on perceived strengths and weaknesses of our program in the light of their work environment. Improvements based on analysis may include possible adaptation of curriculum to address particular skills needed in the job market.

In this reporting cycle, we are not reporting on these additional measures.

Feedback

Files:

LOA Feedback Rubric_Marine Sciences â€“ MS

Program Name: Marine Sciences - MS

Reporting Cycle: Oct 1, 2019 to Sep 30, 2020

Academic Program Coordinator

Renato Castelao

Description of Program

The Department of Marine Sciences offers a graduate degree program at the M.S. level. Active research covers a wide range of topics, including Biological, Chemical, Geological and Physical Oceanography, Microbial Ecology, Climate Change, and Biogeochemistry.

Outcome Outcome #1

Students demonstrate knowledge of the fundamentals of Biological, Chemical, and Physical Oceanography

Measure Measure 1A - Direct

Collective assessment by the instructors of the core courses (Biological, Chemical, Physical Oceanography) of whether each student taking these courses exceeds/meets/does not meet the expected level of knowledge in these core areas.

Threshold for success (if available)

80% of the students must earn a minimum of ‘meets expectation’ in each topic area

Data Collected

Performance data was collected in the core courses MARS 8010 (Biological Oceanographic Processes), MARS 8020 (Chemical Oceanography) and MARS 8030 (General Physical Oceanography). This data included specific questions on assignments, midterms and final exams, quality of class room participation, and a comparison between questions asked at the beginning and the end of the course (pre/post analysis)

Files:

MS 19-20 1A

Analysis of Data

The instructors of the core courses met and discussed the performance and learning outcomes of each student in the 3 respective courses.
Each student was assigned an exceeds/meets/does not meet evaluation based on the data collected.
In Chemical Oceanography 5 out of 5 students met or exceeded expectations. In Biological Oceanography 3 out of 4 students met or exceeded expectations, 1 did not meet expectations. In Physical Oceanography 1 out of 2 students met or exceeded expectations, 1 did not meet expectations.
Thus, the threshold of 80% meet/exceeds was achieved in 1 of the 3 subdisciplines.

Improvement Based on Analysis

Assessment data and summary information was distributed to the Marine Sciences faculty, soliciting input on program improvements.
Missing the 80% mark in biological and physical oceanography was attributed to the low class size, and reflects the challenges students with weaker quantitative skills face. The instructor for physical oceanography led a weekly tutorial session that was designed to help students work through assignments and course content. While participation was voluntary, it gave students an opportunity to work directly with the instructor.

Measure Measure 1C - Indirect

Student self-assessment

Threshold for success (if available)

Self-assessment of an overall 80% satisfactory knowledge in Oceanography

Data Collected

The student annual feedback form contains a self-assessment of their knowledge of the fundamentals of Biological, Chemical, and Physical Oceanography and allows them to indicate activities that increased knowledge in these areas. Satisfactory performance is defined as >=3 out of 5.

Files:

MS 19-20 1C

Analysis of Data

According to their self-assessment, 100% of the students presented satisfactory knowledge in biological oceanography, 100% in chemical oceanography and 66% in physical oceanography. Thus, the threshold of 80% was achieved in biological and chemical oceanography, but not in physical oceanography which again represents the students difficulty with quantitative aspects of physical oceanography. The data will be analyzed annually to assess the level in the self-assessed knowledge of our graduate cohorts, the trend over time and to identify activities that are successful in increasing knowledge.

Improvement Based on Analysis

With thresholds for success met in biological and chemical oceanography, no immediate action was deemed necessary in those disciplines. The assessment for this year was better than for the previous cycle, indicating an improvement over time. Missing the 80% mark in physical oceanography reflects the challenges students with weaker quantitative skills face. This is being addressed through the required course on Quantitative Methods, specifically designed to improve students' mathematical skills relevant to Marine Sciences. The instructors of Physical Oceanography and of Quantitative Methods are working closely together to identify where weaknesses are. Instructors of core courses will continue to identify actions to improve knowledge in key areas of oceanography.

Outcome Outcome #2

Students demonstrate the ability to master field, laboratory, theoretical, and/or computational techniques necessary to contribute to knowledge in their area of research

Measure Measure 2A - Direct

Satisfactory progress in program

Threshold for success (if available)

80% or more of the students are considered to make satisfactory progress

Data Collected

Each year, each student's major advisor submits a report on the student's progress, commenting on research activity, progress in the last 12 months, strengths and weaknesses and goals for the next 12 months. This includes a summary assessment of satisfactory or unsatisfactory progress towards graduation. This report is shared with committee members for comments and approval.

Files:

MS 19-20 2A

Analysis of Data

The data is analyzed to track progress that meets the program standard. 0 out of 6 students made unsatisfactory progress. This exceeds the threshold for success.

Improvement Based on Analysis

Assessment data and summary information was distributed to the Marine Sciences faculty, soliciting input on program improvements.
The data revealed that there were no students who made unsatisfactory progress during this assessment cycle, and no immediate need for improvements was identified.
The graduate coordinator and student affairs professional will continue to reach out to the graduate students to identify and address obstacles for their progress through the program. During fall 2019, we held in-person meetings between each student and the graduate coordinator to help identify both programmatic and individual challenges at an early stage. We have also implemented a mentorship program, where each student selected an independent faculty member to serve as their mentor to provide additional guidance and support.

Measure Measure 2B - Indirect

Student self-assessment

Threshold for success (if available)

Self-assessment of an overall 80% satisfactory knowledge, defined as >=3 out of 5.

Data Collected

The student annual feedback form contains a self-assessment of field, laboratory, theoretical, and/or computational skills, where applicable.

Files:

MS 19-20 2B

Analysis of Data

According to their self-assessment, 83%, 100%, 17% and 34% of the students presented satisfactory field, laboratory, theoretical and computational skills, respectively. The data will be analyzed annually to assess the level in the self-assessed abilities of our graduate cohorts to master these skills.

Improvement Based on Analysis

Input from the students committee will be requested to identify ways to address perceived weaknesses. The graduate coordinator will continue meeting individually with all students to identify these weaknesses in theoretical and computational skills, so they can be addressed. We have created a new course, Methods in Oceanography, will the goal of helping students develop their practical and analytical skills. The course was going to be offered during fall 2020, but was postponed due to covid-19.

Outcome Outcome #3

Students demonstrate ability to communicate concepts and results to expert and non-expert audiences

Measure Measure 3A - Direct

Performance in oral presentations

Threshold for success (if available)

80% of the students earn a rating of 5 out of 10 or higher on all rubrics related to oral presentation

Data Collected

One student completed his/her thesis defense. Faculty normally complete surveys of a student’s oral communication skills at the defense; presentations with students as lead authors are also reported.

Files:

MS 19-20 3A

Analysis of Data

According to the faculty surveys, 100% of the students earned a rating of 5 out of 10 or higher. Thus, the threshold of 80% was achieved. The data will be analyzed to assess the performance trends among Marine Science graduate students.

Improvement Based on Analysis

Additional opportunities for oral presentation skill development, e.g. seminars, lab group meetings, etc., may be added.

Measure Measure 3B - Direct

Performance in written communication

Threshold for success (if available)

80% of the students earn a rating of 5 out of 10 or higher on all rubrics related to written communication

Data Collected

One student completed his/her thesis defense. Faculty on the candidate's committee will complete surveys of a student’s written communication skills reflected in their thesis at the defense; publications with student authors are also reported.

Files:

MS 19-20 3B

Analysis of Data

According to the faculty surveys, 100% of the students earned a rating of 5 out of 10 or higher. Thus, the threshold of 80% was achieved. The data will be analyzed to assess the performance trends among Marine Science graduate students.

Improvement Based on Analysis

Possibility to offer new or encourage enrollment in writing intensive courses. A synthesis skills course on "Proposal writing and review" was offered during Fall 2019 (MARS 8190).

Outcome Outcome #4

Students demonstrate ability to identify a research problem, design, execute, complete and defend research that makes a contribution to scientific knowledge in marine science

Measure Measure 4A - Direct

Documentation of the ability to identify a novel research project and to develop a tractable plan to carry out the research

Threshold for success (if available)

80% approval of thesis proposal within the first 2 years in the program

Data Collected

Thesis proposal approved by the student’s committee is recorded.

Files:

MS 19-20 4A

Analysis of Data

All MS students who entered the program before Fall 2018 have already defended their thesis. Zero of one student who entered the program in Fall 2018 has submitted an approved thesis proposal within the two year time frame used as a guideline for progress.

Improvement Based on Analysis

Assessment data and summary information was distributed to the Marine Sciences faculty, soliciting input on program improvements.

The data indicates that improvements are needed. We have recently begun requiring that students and advisors lagging behind meeting program milestones provide a letter outlining how these milestones will be met in the future.

Measure Measure 4B - Indirect

Submission and success of fellowship and competitive grant applications, and awards received

Threshold for success (if available)

Data Collected

One student received the Southern Association of Marine Laboratories (SAML) Student Award.

Files:

MS 19-20 4B

Analysis of Data

External awards are indicative of a competitive student cohort.

Improvement Based on Analysis

Assessment data and summary information was distributed to the Marine Sciences faculty, soliciting input on program improvements.
The current success by our students to receive external awards suggests that no immediate improvement is needed. We will keep encouraging and supporting our students to compete for fellowships and external funding.
One means of doing so is by offering professional development courses that hone proposal writing skills. A synthesis skills course on "Proposal writing and review" was offered during Fall 2019 (MARS 8190).

Additional Narrative (if applicable)

Procedure: The entire faculty was able to contribute to the definition of the above SLOs, including the measures, and voted on their acceptance. The Graduate Coordinator, Graduate Coordinator Assistant and the Department Head will keep track of SLO data assessment and remedial actions discussed at faculty meetings.

Expanded narrative: There are several indicators of the quality of our graduate program that transcend the above SLOs, including student contributions to academic research, excellence in teaching and outreach and their ability to compete for jobs. While success in these areas are commonly tied to the SLOs, external factors and/or personal preferences can also strongly impact these measures. Hence, they are not explicitly incorporated in the above SLOs, but are guiding the continued improvement of our graduate program.

1. Documented contribution to primary academic research
Peer-reviewed publications are a cornerstone of scientific success, productivity and impact. Thus, we collect information on student participation in co-authored publications and presentations at scientific meetings, or other contributions to scientific work. The number of scientific publications and presentations by the graduate students in our program will be tracked over time. Lack of publications and/or presentations by individual students will be addressed by the student’s committee by discussing challenges to increased productivity and/or options to present the student’s research

2. Participation in teaching, service and outreach activities
The ability to effectively communicate scientific results and importance to a broad audience outside marine sciences is a critical component of student training and knowledge gained. Thus, we collect (self-reported) information on service and outreach activities of our graduate students. In addition, service in teaching will be recorded, and we will carry out an annual survey of teaching experience. Data will be analyzed to assess trends in service and teaching activities, and improvements based on the data analysis may include possible addition of incentives to participate in teaching, service and outreach activities

3. Job placement
The ability to find fulfilling employment after graduate school is central to the long-term success of our program. Thus, we will seek information on job placement of our graduates upon graduation, and will inquire with our alumni on their employment and career choices at least once in the 7 year program evaluation cycle. We will assess alumni employment by sectors and skills required and reach out to our alumni to obtain input on perceived strengths and weaknesses of our program in the light of their work environment. Improvements based on analysis may include possible adaptation of curriculum to address particular skills needed in the job market.

In this reporting cycle, we are not reporting on these additional measures.

Feedback

Files:

Marine Sciences - MS

End of report