THE
UNIVERSITY
OF RHODE ISLAND
FACULTY SENATE OFFICE

224 Pastore Hall, 51 Lower College Road, Kingston, RI 02881 USA p: 401.874.2616

THINK BIG WE DO™

Serial Number #19-20-28C

TO: President David Dooley
FROM: Bahram Nassersharif, Chairperson of the Faculty Senate

1. The attached BILL titled, the Curriculum and Standards Committee Report #2019-20-10: Creation of an Undergraduate Marine Technical Certificate Program, is forwarded for your consideration.

2. This BILL was adopted by vote of the Faculty Senate on April 16, 2020.

3. After considering this bill, will you please indicate your approval or disapproval. Return the original, completing the appropriate endorsement below.

4. In accordance with Section 10, paragraph 4 of the Senate's By-Laws, this bill will become effective May 7, 2020 three weeks after Senate approval, unless: (1) specific dates for implementation are written into the bill; (2) you return it disapproved; or (3) the University Faculty petitions for a referendum.

Bahram Nassersharif

Bahram Nassersharif April 16, 2020
Chairperson of the Faculty Senate

ENDORSEMENT

TO: Chairperson of the Faculty Senate

FROM: President of the University

a. Approved____.

b. Approved with Notification to the University of Rhode Island Board of Trustees .X__

c. Disapproved____.

April 30, 2020

Signature of the President (date)

THE
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FACULTY SENATE OFFICE

THINK BIG WE DO™

UNIVERSITY OF RHODE ISLAND FACULTY SENATE
April 16, 2020

Faculty Senate Curriculum and Standards Committee
Report 2019-2020-10

At the March 26, 2020 meeting of the Curriculum and Standards Committee and by electronic communication, the following matters were considered and are now presented to the Faculty Senate.

SECTION II
Curricular Matters Which Require Confirmation by the Faculty Senate

NEW PROGRAMS

COLLEGE OF ENVIRONMENT AND LIFE SCIENCES:
Undergraduate Marine Technical Certificate Program **(Contact: Rebecca Brown)**
(See Appendix N)

The URI Marine Technical Certificate Program provides students with experiential learning opportunities to acquire technical skills and professional certifications needed for marine-related research careers. Skills include boat handling, scuba diving, underwater research, equipment maintenance, and troubleshooting in adverse conditions in field-based settings. These skills are critical for performance in disciplines such as marine biology, oceanography, aquaculture, fisheries, biological sciences, biomedical technology, natural resources science, ocean engineering, underwater archaeology, and maritime history. Participants will acquire field-based experiences and the necessary professional certifications per the American Academy of Underwater Sciences (AAUS), the World Recreational Scuba Training Council (WRSTC), and any relevant equipment service technician certifications. Upon completion of this undergraduate certificate, students will marine and environmental issues, 2) demonstrate practical and technical skills in scuba diving, boating operations, and specialized underwater research necessary for fieldwork, and 3) apply knowledge to troubleshoot equipment related issues when conducting research. The Marine Technical Certificate Program will provide a formal certificate acknowledging this experiential learning as well as real-world, practical experience necessary for most field-based positions in marine-related research careers.

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Appendix N

Revised 12/2016

Abbreviated Proposal form
For All Programs including Certificates
No New Funding

A Proposal for: **MARINE TECHNICAL CERTIFICATE PROGRAM (Undergraduate Certificate)**

Date: **10/31/19**

A. PROGRAM INFORMATION

A1. Name of institution University of Rhode Island

A2. Name of department, division, school or college
Department - FISHERIES, ANIMAL AND VETERINARY SCIENCE (FAVS)
College - ENVIRONMENT AND LIFE SCIENCES (CELS)

A3. Title of proposed program and Classification of Instructional Programs (CIP) code
Program title - MARINE TECHNICAL CERTIFICATE PROGRAM
Classification code (CIP) – 30.3201 (Marine Sciences)

A4. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.
Initiation date_____Fall 2020
First degree date May 2021

A5. Intended location of the program University of Rhode Island, Kingston, RI

A6. Description of institutional review and approval process

		Approval Date
Department		
College		
~~CAC/Graduate Council~~	Curriculum and Standards Committee	3/26/20
Faculty Senate		4/16/20
President of the University		

A7. Summary description of proposed program (not to exceed 2 pages)- see supporting documentation for Catalog Description.

The URI Marine Technical Certificate Program provides students with experiential learning opportunities to acquire technical skills and professional certifications needed for marine-related research careers. Skills include boat handling, scuba diving, underwater research, equipment maintenance, and troubleshooting in adverse conditions in field-based settings. These skills are critical for performance in disciplines such as marine biology, oceanography, aquaculture, fisheries, biological sciences, biomedical technology, natural resources science, ocean engineering, underwater archaeology, and maritime history. Participants will acquire field-based experiences and the necessary professional certifications per the American Academy of

Underwater Sciences (AAUS), the World Recreational Scuba Training Council (WRSTC), and any relevant equipment service technician certifications. Upon completion of this undergraduate certificate, students will have the learning to: 1) apply technical skills to tackle real world research questions around marine and environmental issues, 2) demonstrate practical and technical skills in scuba diving, boating operations, and specialized underwater research necessary for fieldwork, and 3) apply knowledge to troubleshoot equipment-related issues when conducting research. The Marine Technical Certificate Program will provide a formal certificate acknowledging this experiential learning as well as real-world, practical experience necessary for most field-based positions in marine-related research careers.

A8. Signature of the President

David M. Dooley

A9. Person to contact during the proposal review

Name: Marta Gomez-Chiarri
Title: Professor and Chair, FAVS
Phone: 401-874-2017
Email: gomezchi@uri.edu

Name: Donald DeHayes
Title: Provost/VP Academic Affairs
Phone: 401-874-4410
email: officeofprovost@etal.uri.edu

A10. List and attach any signed agreements for any cooperative arrangements made with other institutions/agencies or private companies in support of the program.

None

B. RATIONALE: There should be a demonstrable need for the program.

B1. Explain and quantify the needs addressed by this program, and present evidence that the program fulfills these needs.

The URI Marine Technical Certificate Program provides students with the educational practical training to acquire additional certifications and technical skills required for most positions in marine-related research careers. These skills include boating handling, scuba diving, underwater research, and equipment maintenance needed for professional employment. This need is widely seen in research positions in marine biology, oceanography, fisheries, biological sciences, biomedical technology, natural resources science, ocean engineering, underwater archaeology and maritime history. Relevant positions are found in aquaria, fisheries and aquaculture facilities, museums, federal agencies such as the EPA, NOAA, Smithsonian Institution, National Park Service, not-for-profit organizations focusing on marine resource conservation such as The Nature Conservancy or educational outreach programs like Save the Bay, and private corporations, primarily environmental consulting groups. These positions depend on candidates with well-rounded academic backgrounds in addition to numerous technical certifications and work-related experiences.

Upon completion of this undergraduate certificate, students will have the ability and practical skills to conduct marine-related research and other marine-related professional employment requirements for boating and diving operations. This includes acquiring the necessary certifications per the American Academy of Underwater

Sciences (AAUS), professional-level diving certifications according to the World Recreational Scuba Training Council (WRSTC), boat handling skills, and equipment troubleshooting in adverse conditions. Participating students will accelerate their resumes by acquiring the experience necessary for most employment opportunities, especially those in field-based research.

B2. What is the economic need and workforce data related to the program?

The American Academy of Underwater Sciences (AAUS) is composed of almost 200 participating institutions in the United States including not-for-profit organizations, aquaria, state and federal government agencies, educational institutions, and private corporations. All participating organizations, such as URI, require employees to have specific certifications for scientific diving and boating. In 2018, AAUS reported a total of 6227 divers completing 112,491 dives. These statistics include graduates of URI. Offering a formal Marine Technical Certificate Program would increase the practical skills and marketability of graduates entering the workforce.

At URI alone, the total reported grant awards involving scientific diving over the past 5 years totaled more than $5.3 million. Many of these grants are additionally supported by research support roles such as marine specialists to drive vessels and ensure the safety of participants in the field. All 200 participating AAUS institutions have similar support roles; with this certificate, URI undergraduates could formally qualify for those positions.

B3. Provide information on jobs available as a result of successfully completing the certificate or degree: job titles, job outlook/growth, and salaries.

Projected growth for environmental scientists and specialists (marine biology not specified) is 8%, faster than the average, from 2018-2028 according to the Bureau of Labor Statistics. Available jobs for a graduate of the Marine Technical Certificate Program could include: research technicians, research associates, zoologists (aquarium husbandry) and wildlife biologists, educational instructors, tourist operators, and private consultants. Graduating students will greatly increase their marketability in a competitive job market with technical skills and certifications on their resumes. Salaries range widely from $50,000 to $125,000 per year. The median annual wage was $71,130 in May 2018.

C. INSTITUTIONAL ROLE: The program should be clearly related to the published role and mission of the institution and be compatible with other programs and activities of the institution.

C1. Explain how the program is consistent with the published role and mission of the institution and how it is related to the institution's academic planning.

The ocean encompasses 72% of the earth's surface and 80% of the world's population lives within 60 miles of the coastline. Most livelihoods are directly dependent on our marine environment. As the flagship university in the Ocean State, URI is a global leader in marine education. The Diving Research & Safety Program provides professional-level training to many participating students from marine biology, oceanography, fisheries, biological sciences, biomedical technology, natural resources science, ocean engineering, underwater archaeology and maritime history. The Marine Technical Certificate Program would foster students on an individual basis to not only acquire the academic knowledge but also the practical skills through professional-level certifications to become productive scientists and researchers in marine-related careers.

The Marine Technical Certificate Program relates to URI's academic planning in numerous ways, especially in experiential learning through a customized approach. Learning would fulfill goals 1 and 2 of the URI Academic Strategic Plan to "expand pedagogical approaches focus on engaging students in learning across curriculum" and "significantly expand opportunities for experiential learning" by incorporating project-based learning with realistic practical applications relevant to marine-related careers. For example, participating students would implement and actively conduct an on-going study assessing the effects of climate change on local species (both distribution and abundance) in Narragansett Bay. This program would also fulfill Goal 2 of the Academic Strategic Plan to "expand research, scholarship and creative work." With individualized attention, students would receive professional advising, partner with university collaborators such as The Ocean Agency on conservation projects, and tailor student interest in a customized approach for future careers.

D. INTER-INSTITUTIONAL CONSIDERATIONS: The program should be consistent with all policies of the Council on Postsecondary Education pertaining to the coordination and collaboration between public institutions of higher education.

D1. Estimate the projected impact of this program on other public higher education institutions in Rhode Island (e.g. loss of students or revenues), provide a rationale for the assumptions made in the projections, and indicate the manner in which the other public institutions were consulted in developing the projections. Have you communicated with other institutions about the development of this program and have any concerns been raised related to role, scope, and mission or duplication.

To our knowledge, there are no similar programs in Rhode Island and the northeast region. There are programs in marine technology from institutions such as National University and programs in boating mechanics and technology from non-academic institutions. Some maritime academies provide similar courses, but these are typically focused on maritime industry positions versus research and science. URI has the only scuba diving program in the state of Rhode Island and serves as a national leader in Scientific Diving in the United States. Other state institutions may have courses in boating and diving similar to URI, but none have a certificate program like this one designed to provide students with an advantage in the job market.

D2. Using the format prescribed by the Council on Postsecondary Education, describe provisions for transfer students (into or out of the program) at other Rhode Island public institutions of higher education. Describe any transfer agreements with independent institutions. The institution must also submit either a Joint Admissions Agreement transition plan or the reason(s) the new program is not transferable (see *Procedure for Strengthening the Articulation/Transfer Component of the Review Process for New Programs*).

Not applicable. Students would already be enrolled in undergraduate programs established at URI and the Marine Technical Certificate would be a supplemental certificate for participants only.

D3. Describe any cooperative arrangements or affiliations with other institutions in establishing this program. (Signed copies of any agreements pertaining to use of faculty, library, equipment, and facilities should be attached.)

None

D4. How does this program align to academic programs at other institutions?

Other institutions may provide elective courses in boat handling or scuba diving, but none have a certificate program designed to provide students with the practical training and certifications to support future job placement, especially in marine research-related positions.

D5. Are recipients of this credential accepted into programs at the next degree level without issue?

We expect this to be the case. This certificate would make graduates much more marketable for positions in the workforce as well as graduate school for continuing education purposes.

D6. How does this program of study interface with degree programs at the level below them?

This certificate program is designed to supplement undergraduate degrees and attract prospective students with similar interests. Participating students would most likely conduct the majority of the certificate's required credits during the last two years of undergraduate coursework, allowing them to specialize further in their education as they consider future entry into the workforce.

D7. If external affiliations are required, identify providing agencies. (Indicate the status of any arrangements made and append letters of agreement, if appropriate.)

None needed. This program takes advantage of the resources already available for undergraduate and graduate students in marine-related degree programs at URI.

D8. Indicate whether the program will be available to students under the New England Board of Higher Education's (NEBHE) Regional Student Program (RSP).

No

E. PROGRAM: The program should meet a recognized educational need and be delivered in an appropriate mode.

E1. Prepare a typical curriculum display for one program cycle for each sub-major, specialty or option, including the following information:

a. Name of courses, departments, and catalog numbers and brief descriptions for new courses, preferably as these will appear in the catalog.

Catalog description: 12 credits from the following undergraduate course list: AFS 270, AFS 290, AFS 433 with the option of elective credits from AFS 395, AFS 396, or HIS 396. These courses will be chosen in consultation with an academic advisor, based on the student's career interests and current undergraduate degree. Students are responsible for meeting the prerequisite requirements for individual courses, as applicable. These courses may also be applied to a degree program at URI.

No new courses are proposed as part of this program but instead builds on existing course offerings. See attachment for a complete catalog program description.

b. Are there specializations and/or tracks/options/sub-plans/concentrations? If so, describe required courses in area of specialization or tracks/options/sub-plans/concentrations.

None.

c. Course distribution requirements, if any, within program.

12 credits from the following undergraduate course list: AFS 270, AFS 290, AFS 433 with the option of elective credits from AFS 395, AFS 396, or HIS 396. These courses will be chosen in consultation with an academic advisor (Anya Hanson, Diving Safety Officer), based on the student's career interests and current undergraduate degree. Including special topics programs will allow students to better customize their interests through experiential learning opportunities.

d. Total number of free electives available after specialization requirements are satisfied.

3 elective credits may be chosen from AFS 395, AFS 396, or HIS 396.

e. Total number of credits required for completion of program or for graduation. Present evidence that the program is of appropriate length as illustrated by conformity with appropriate accrediting agency standards, applicable industry standards, or other credible measure, and comparability of lengths with similar programs in the state or region.

A total of 12 credits of coursework that can be applied to a degree program as part of the 120 required credits).

f. Identify any courses that will be delivered or received by way of distance learning (refer to *Policy on Distance Learning, Council on Postsecondary Education, State of Rhode Island and Providence Plantations*).

None- the program requires in-person education for practical training purposes.

g. Is the program content guided by program-specific accreditation standards or other outside guidance?

Certain courses listed follow specific standards, but the overall program does not follow an accreditation standard. AFS 270 and AFS 395 follow standards as set forth by the World Recreational Scuba Training Council (WRSTC), a global requirement for all recreational-level scuba diving certifications. These courses also adhere to a curriculum provided by Scuba Diving International (SDI). AFS 433 follows standards set forth per the American Academy of Underwater Sciences (AAUS). These courses are already in existence with this format. AFS290- Small boats is an introduction to basic seamanship used in inland waters.

E2. Describe certification/licensing requirements, if any, for program graduates and the degree to which completion of the required course work meets said requirements. Indicate the agencies and timetables for graduates to meet those requirements.

Individual courses, especially for diving-related courses, will include lifetime certifications upon successful completion of the course. For AFS 270 and AFS 395, certifications (based on curriculum and practical evaluation) must be completed within one year of the course start date.

E3. Include the learning goals (what students are expected to gain, achieve, know, or demonstrate by completion of the program) and requirements for each program.

Learning Goal: On completion of the Marine Technical Certificate program, students will acquire the academic knowledge and technical skills necessary for employment in marine-related careers incorporating fieldwork. The Student Learning Outcomes related to this goal are:

1) Apply technical skills to tackle real world research questions around marine and environmental issues.
2) Demonstrate practical and technical skills in scuba diving, boating operations, and specialized underwater research necessary for fieldwork.
3) Apply knowledge to troubleshoot equipment-related issues when conducting research.

E4. Demonstrate that student learning is assessed based on clear statements of learning outcomes and expectations.

The student learning outcomes will be assessed by the Marine Technical Certificate Program Committee using a similar rubric to that of the AFS B.S. major degree (see supporting materials included at the end of the proposal form).

E5. Provide an assessment plan detailing what a student should know and be able to do at the end of the program and how the skills and knowledge will be assessed. Consult with the Office of Student Learning, Outcomes Assessment, and Accreditation (SLOAA) to prepare a Learning Outcomes Assessment Plan for student learning assessment. Following consultation, submit a final draft of the plan to the Chair of the Learning Outcomes Oversight Committee (LOOC) for approval by the full Learning Outcomes Oversight Committee.

See assessment plan attached.

F. FACULTY AND STAFF: The faculty and support staff for the program should be sufficient in number and demonstrate the knowledge, skills, and other attributes necessary to the success of the program.

F1. Describe the faculty who will be assigned to the program. Indicate total full-time equivalent (FTE) positions required for the program, the proportion of program faculty who will be in tenure-track positions, and whether faculty positions will be new positions or reassignment of existing positions. What are the minimal degree level and academic/technical field requirements and certifications required for teaching in this program?

No new resources are needed. The program will be coordinated by the Director of the Diving Research & Safety Program, Anya Hanson. Faculty involved in delivering the program include Lecturer Alexandra Moen and the staff from the R.V. Capt. Bert, including Captain Barber. There are no new positions or reassignments. The faculty and staff are all specialized with the required certifications to deliver this education through existing coursework and are already involved in advising students as part of their current duties.

G. STUDENTS: The program should be designed to provide students with a course of study that will contribute to their intellectual, social, and economic well-being. Students selected should have the necessary potential and commitment to complete the program successfully.

G1. Describe the potential students for the program and the primary source of students. Indicate the extent to which the program will attract new students or will draw students from existing programs and provide a specific rationale for these assumptions. For graduate programs, indicate which undergraduate programs would be a potential source of students.

As a supplemental undergraduate program, the Marine Technical Certificate Program would have to include students already existing in other undergraduate majors. We expect interested participants (and those that would be accepted) would already be in the following marine-related programs: Marine Biology, Aquaculture and Fisheries Science, Biological Science, Marine Affairs, Natural Resources Science, Ocean Engineering, and Underwater Archaeology. We do not foresee any issues of competition with existing programs, but rather an opportunity for students from diverse backgrounds to come together and further their education with real-world, experiential learning opportunities. Students already take these courses and this program would provide formal acknowledgement of their achievements for future career placement.

Students participating in URI marine-related undergraduate degrees such as those listed above would qualify for the program. Students will be selected by the Program Coordinator (Hanson) with the aid of a committee composed of two other members of the Aquaculture and Fisheries Faculty and staff (e.g. Moen and department chair, Gomez-Chiarri). Selection will be based on the following criteria: 1) current enrollment in a marine-related or environmental degree, 2) ability to contribute and complete coursework (based on two letters of recommendation from peers, mentors or colleagues), and 3) balance of career goals with the program (based on a personal written statement). Students are responsible for meeting the prerequisite requirements for individual courses when applicable. Students accepted into the program will be advised on course prerequisites prior or during their first semester in the program. Undergraduate students will receive their Certificate upon successful completion of the 12 required course credits.

H. EVALUATION: Appropriate criteria for evaluating the success of a program should be developed and used.

H1. List the performance measures by which the institution plans to evaluate the program. Indicate the frequency of measurement and the personnel responsible for performance measurements. Describe provisions made for external evaluation, as appropriate.

a. Performance measures to evaluate the program.

Metric	Successful Beyond Expectations	As Expected	Does Not Meet Expectation
Number of applicants per year. The larger this number, the more successful the program. If we get no applicants in the first three years, we will assume we misjudged the marketplace. Since all the classes used to meet the requirements for the certificate are already being taught, there will be no impact if the program is poorly subscribed.	Over 15	1-15	0
Number of matriculating students. We will monitor the number of students actively pursuing a certificate. Because we might be hosting part-time students who need extra time to complete the requirements for the certificate, the number of matriculating students will give us a good indication of program vitality.	Over 10	1-10	0
Number of certificates granted per year. A student should be able to complete the certificate in four semesters based on the sequential nature of courses. Part-time students should be able to complete the program in six semesters. If students fail to complete the requirements in these time windows, we will have to determine what the obstacles are.	Over 10	1-10	0
Student diversity. We will advertise the certificate to reach students representing a diversity of cultures, genders, ages, and stage of career.	Equitable distribution of students across all diversity categories	Some representation of diversity categories but not spread evenly	No students from underrepresented diversity categories

I. IS THE PROGRAM FINANCIALLY VIABLE?

I. IS THE PROGRAM FINANCIALLY VIABLE?

I1. ALL PROPOSALS: Complete the Rhode Island Office of Postsecondary Commissioner Budget Form demonstrating that existing funds are sufficient for carrying out the program. The completed proposal with Budget Form requires review by the URI Budget and Financial Planning Office. Proposers shall request a Statement of No Financial Impact from the URI Budget and Financial Planning Office.

No additional resources are needed since the program uses existing resources and courses from the Aquaculture and Fisheries department; no new expenditures will be incurred. Current funding, as it exists, is enough for carrying out to the proposed program. See attached budget sheets and supporting documentation.

Attachments:

1. Catalog Program Description
2. Program Student Learning Outcomes Assessment Plan and LOOC Approval
3. Library Impact
4. Budget sheets (sent as attachment) and no impact letter
5. Supporting documentation from associated department
6. Curriculum

Marine Technical Certificate Program- Catalog Program Description

The URI Marine Technical Certificate Program provides students with experiential learning opportunities to acquire technical skills and professional certifications needed for marine-related research careers. Skills include boat handling, scuba diving, underwater research, equipment maintenance, and troubleshooting in adverse conditions in field-based settings. These skills are critical for performance in disciplines such as marine biology, oceanography, aquaculture, fisheries, biological sciences, biomedical technology, natural resources science, ocean engineering, underwater archaeology, and maritime history. Participants will acquire field-based experiences and the necessary professional certifications per the American Academy of Underwater Sciences (AAUS), the World Recreational Scuba Training Council (WRSTC), and any relevant equipment service technician certifications. Upon completion of this undergraduate certificate, students will have the learning to: 1) apply technical skills to tackle real world research questions around marine and environmental issues, 2) demonstrate practical and technical skills in scuba diving, boating operations, and specialized underwater research necessary for fieldwork, and 3) apply knowledge to troubleshoot equipment-related issues when conducting research. The Marine Technical Certificate Program will provide a formal certificate acknowledging this experiential learning as well as real-world, practical experience necessary for most field-based positions in marine-related research careers.

Admission requirements: Applications should include: 1) college transcript certifying current enrollment in a URI undergraduate marine-related or environmental degree, 2) two letters of recommendation from peers, mentors, or colleagues supporting your ability to complete necessary coursework to technical skills, and 3) a personal written statement why you are seeking enrollment to this certificate program and your needs for future career goals. Students will be advised on course prerequisites prior or during their first semester in the program. Students should send all required application materials to the program coordinator, Anya Hanson. Applications for Fall semester admission should be completed by 10 August and applications for Spring semester admission should be completed by 1 December. Students accepted into the program must submit an Undergraduate Certificate Program form to the office of their academic dean at the time of acceptance.

Program requirements: 12 credits from the following undergraduate course list: AFS 270, AFS 290, AFS 433 with the option of elective credits from AFS 395, AFS 396, or HIS 396. Courses will be chosen in consultation with the program coordinator and based on the student's career interests and current undergraduate degree. Students are responsible for meeting the prerequisite requirements for individual courses, as applicable. These courses may also be applied to a degree program at URI. Students will receive their Certificate upon successful completion of the 12 required course credits and after submitting the Nomination for Graduation Certificate Program form.

Program Student Learning Outcomes Assessment Plan

THE UNIVERSITY OF RHODE ISLAND

ACADEMIC PROGRAM ASSESSMENT PLAN

All new programs and certificates must have clearly articulated program goals (Section I) and student learning outcome statements linked to curriculum and course experiences/requirements (Section II). The Curriculum Map guides programs in to present the extent to which their student learning outcomes are aligned with courses and other program requirements intended to provide students with opportunities to develop and master the learning outcomes by graduation. Each program (not certificates) will also create an Assessment Timeline (Section III) indicating when and how learning outcomes assessment will take place. All undergraduate and graduate programs are encouraged to create a six-year (3 rounds) Assessment Plan to guide assessment reporting.

Date SLOAA review: 12/2019
Date LOOC* review: 2/2020

*(LOOC Chair and review

If you have questions or need assistance, please contact the Office of Student Learning, Outcome Assessment, and Accreditation (SLOAA) at assess@uri.edu.

Program Information	
Program:	Marine Technical Certificate Program
Academic year plan submitted:	Fall 2019
Degree(s):	AFS Undergraduate Certificate
Department Chair:	Marta Gomez-Chiarri
Program Director:	Anya Hanson
Accredited Program:	**X No ☐ Yes; specify year next accreditation report due: _____**
Published learning outcomes (URL):	Proposed new program

Section I. Program Goals: Broad, general statements of what it means to be an effective program in terms of student learning outcomes; what the program wants students to know and be able to do upon completion of the program. Goals should relate to the mission of the department, college, and university in which the program resides. Success in achieving Goals is evaluated directly or indirectly by measuring specific outcomes (Section II) related to the goal.

Goal 1	Students will gain technical expertise and practical knowledge to support research addressing critical marine and environmental issues.

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PROGRAM ASSESSMENT PLAN

Section II. Curriculum Mapping: Across the top of the matrix, list courses and other requirements for the program. Order the requirements from left to right in rough chronological/developmental sequence and add a standard description of your program requirements. Down the side, list program student learning outcomes associated with goals. Using the **Map Key** below, indicate the degree to which an outcome will be taught and assessed in relevant courses and by other program requirements. Use "*" to identify the best assessable moments in the curriculum.

Map Key
I = Outcome Introduced for Mastery
R = Outcome Reinforced for Mastery
E = Outcome Emphasized for Mastery
* = Courses included in program assessment

Student Learning Outcomes (Competencies) by Goal:
Statements of observable, measurable results of the educational experience, linked to program goals (Section I), that specify what a student is expected to know or be able to do throughout a program; these must be detailed and meaningful enough to guide decisions in program planning, improvement, pedagogy, and practice.

Course Numbers/Program Requirements:
In addition to specific courses, this can include internships, portfolios, and other requirements not associated with a course number, such as thesis/dissertation proposals, thesis/dissertation defenses, and comprehensive examinations.

		AFS 270 and AFS 290	AFS 433	Electives Chose 2 of 3												
				AFS 396	AFS 395	HIS 396										
1	**Students will demonstrate technical skills in support of marine sciences (e.g. scuba diving, boating operations).**	I	E	E	R	R										
2	**Students will apply technical skills to solve problems in marine and environmental issues.**	I	E	E	R	E										

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PROGRAM ASSESSMENT PLAN

Section III. Assessment Timeline: Indicate when and how student learning will be assessed based on learning outcome statements and expectations. Refer to the curriculum map to propose an assessment timeline in which the program will plan to assess student learning outcomes. Specify a 6-year plan for assessment to represent **3 two-year reporting periods**:

- Assessment Reporting Period 1: the first academic year in which the program would plan to assess at least one outcome.
- Assessment Reporting Period 2: follows two years later, with plans defined for assessing another outcome(s).
- Assessment Reporting Period 3: follows two years later, with plans defined for assessing additional outcome(s).

All goal areas should be assessed by at least one outcome within the 6-year plan.

Academic Years	Student Learning Outcome(s) WHICH outcome(s) will you examine in each period (use number(s) from curriculum map, e.g. 1.1)?	Course(s) and Other Program Requirements WHERE will you look for evidence of student learning (i.e., what course(s)/program requirements)? Designate for each outcome.	Assessment Evidence of Student Learning WHAT direct/indirect student work or other evidence of student learning will you examine in order to generate conclusions and recommendations? Designate for each requirement.	Assessment Method of Student Learning HOW will you look at the evidence; what means and process will you use to evaluate student learning (e.g., rubric, analysis of test scores, etc.)? Designate for each evidence source.
Assessment Reporting Period 1 Report Due May 2021*	**#1. Students will demonstrate technical skills in support of marine sciences (e.g. scuba diving, boating operations).**	AFS270, AFS290, AFS 433, AFS 395	AFS 270, 433, and 395 will receive certifications upon completion of the courses. AFS 290 will test students for their ability to perform specific tasks (e.g. dock a boat, buoyancy diving control) successfully. All courses also have a final exam.	Final evaluations of AFS270, 433 (courses with a diving component) will be assessed based on the American Academy of Underwater Sciences (AAUS) and Scuba Diving International rubrics (as relevant). AFS 290 will use the Coast Guard Manual for the list of tasks to be completed.
Assessment Reporting Period 2 Report Due May 2023	**#1. Students will demonstrate technical skills in support of marine sciences (e.g. scuba diving, boating operations).**	AFS 396	Marine Technical practicum, AFS 396, will be tailored to student interest but will include final projects or field-based evaluations (e.g. buoyancy control, field experiment correction underwater) and meeting minimum standards according to scuba diving training agencies and technical equipment requirements.	Final evaluations will be assessed using the Scuba diving International rubrics. Final projects should result in at least 75% mastery of content.

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PROGRAM ASSESSMENT PLAN

Assessment Reporting Period 3 Report Due May 2025	**#2. Students will apply technical skills to solve problems in marine and environmental issues.**	AFS 433, HIS 396, AFS 396	Field journals in HIS 396 and field-based evaluations in AFS 396 courses. AFS 433 has a final exam.	Students must receive a minimum of 80% score on exams and projects. HIS 396 and AFS 396 has a final field journal and field-based report (e.g ability to perform work underwater).

* Initial reporting year is established by the program and will depend on the anticipated timeframe for program implementation.

LOOC FEEDBACK

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LEARNING OUTCOMES
OVERSIGHT COMMITTEE

Kingston, RI 02881 www.uri.edu/assessment

THINK BIG WE DO™

MEMORANDUM

February 24, 2020

To: Marta Gomez-Chiarri, Chair
and Anya Hanson (Program Director)

From: Susan T. Brand, LOOC Interim Chair

This memo and the attached undergraduate Marine Technical Certificate Plan Review Feedback Form constitute approval of your Program Assessment Plan for the proposed program in Marine Biology. The new version of the plan (also attached) has the approval date on the first page and should replace any previous versions of this document. Please include this letter and the two attachments in your program proposal and ensure that any language relating to learning outcomes, goals, etc. in your final proposal aligns with the final approval draft of the Assessment Plan.

Good luck and speed with your full proposal!

Cc: E. Finan
J. Lawrence

Attachments

THE
UNIVERSITY
OF RHODE ISLAND

NEW CERTIFICATE ASSESSMENT PLAN REVIEW

Date SLOAA review: 12/2019
Date LOOC* review: 2/2020
*(LOOC Chair and review subcommittee)

Academic Program/Degree: Marine Technical Certificate (undergraduate)
College: College of Environmental and Life Sciences
Date New Program Assessment Plan Submitted: December 2019
Faculty Member(s) Submitting Plan Proposal: Marta Gomez-Chiarri, Anya Hanson

FEEDBACK

Strengths:

SLOAA:

- The Assessment Plan details the technical skills, knowledge and abilities students will acquire as they earn this undergraduate certificate which embeds an external certification for basic and research diving and provides an opportunity for an additional certification in boating.
- The curriculum ensures a critical base level of knowledge is acquired.
- The certificate seeks to codify what is already in place in terms of available student experiences, highlighting the importance of technical expertise to support active research in a marine environment, and also showcasing for employers that students have critical professional and technical skills to succeed in marine research.

LOOC:

- Outcomes are clearly written and appropriate for a certificate. Clear sequence of courses allowing students to practice skills. Scuba diving and boating are clearly measurable.
- Encompass students from six programs that each can apply toward their degree programs.
- Should attract many students in related majors.
- Experiential learning is a strength.

Suggestions for improvement:

SLOAA: Suggestions were responded to by the program during preliminary consultation.

LOOC: N/A

Issue(s) of note:

SLOAA: N/A

LOOC: N/A

Assessment Plan Designation:

1

Updated 7.2016

1 X	2 _____	3 _____
The Assessment Plan is ready for implementation.	The Assessment Plan can be implemented after minor revisions, as indicated, and does not require further review.	The Assessment Plan requires revisions, and should be submitted for further review after revisions, by date: _____

Library Impact Statement

LIBRARIAN'S ASSESSMENT

The Collection Management Officer will complete this form as requested, assessing library materials and collections as detailed below, returning. Subject selectors who receive requests for Library Impact Statements for new programs should forward those requests to the CMO.

Program: Undergraduate Marine Technical Certificate

Department, College: FAVS-CELS

Faculty Member: Marta Gomez-Chiarri

Date returned to Faculty: _11-13-19

Librarian Completing Assessment: Joanna M. Burkhardt

Collection Management Officer: Joanna M. Burkhardt

Assessment of:

- Suitability of existing library resources;
- New library resources required to support the program;
- Information skills education required by the students; and
- Funds needed for library materials and services.

Please include:

1. What library holdings already exist in relevant subject categories? How much money is now allocated in the program subject area?

   The URI Libraries have substantial holdings in relevant subject categories. As this program does not include any new courses, there should be no problem supporting this certificate program with existing resources. The allocation for the purchase of monographs in FAVS for 2019-20 is approximately $3500. The cost of journal subscriptions is not broken out by department or college.

2. Does URI have the essential journals as noted in the Faculty Questionnaire?

   URI subscribes to the essential journals and databases noted in the Faculty Questionnaire.

3. What new resources are required to support the program (including media, electronic, or other non-print materials)?

   No new library resources are required for the support of this course.

4. What information mastery sessions will be required for the students?

   Library Instructions can be provided by the Instruction Department of the Library. Faculty can arrange to bring their classes to the library by contacting the Instruction Department at the beginning of any semester.

5. What is the approximate cost to acquire the materials necessary? Which of these will be continuing costs?

   There are no new costs to the library for the support of this program.

rev 3-2-17

Budget Sheet

THE UNIVERSITY OF RHODE ISLAND
1892–2017

THINK BIG WE DO™

BUDGET AND FINANCIAL PLANNING
Adams House, 85 Upper College Road, Kingston, RI 02881 USA p: 401.874.2509 web.uri.edu/budget

DATE: December 12, 2019

TO: Margaret Benz
Coordinator, Faculty Senate

FROM: Linda Barrett
Director, Budget and Financial Planning

SUBJECT: Proposal for an Undergraduate Certificate in Marine Technical Certificate Program

As requested from Anya Hanson, URI Diving Safety Officer, dated December 3, 2019, the Budget and Financial Planning Office has reviewed the submitted documents related to the proposal for an Undergraduate Certificate in the Marine Technical Certificate Program.

The Budget and Financial Planning Office, including communications with Enrollment Services, concurs that the request for a proposal of an Undergraduate Certificate in the Marine Technical Certificate Program is not anticipated to have an impact on the Fund 100 unrestricted budget as it has been presented.

Please let us know if you require any further information.

cc: Donald DeHayes
Dean Libutti
Colleen Robillard
Anya Hanson
Joanne Lawrence
Marta Gomez-Chiarri
Jeannette Riley
Matthew Bodah
Cheryl Hinkson
Anne Veeger
Bruce Corliss
John Humphrey
John Kirby
Raymond Wright

Office/BudgetImpactStatements/marinetechnicalcertificateprogram/BudgetImpactStatementLetter

ACADEMIC PROGRAM BUDGET FORM Most students from existing programs (completion in 4 years)

Use this form for programs that can be pursued on a full-time basis, part-time basis, or through a combination of full-time and part-time attendance.

Choose one: □ Full-time □ Part-time X Combination of full- and part-time

REVENUE ESTIMATES

	Year 1 2020		Year 2 2021		Year 3 2022		Year 4 2023	
Tuition: In-State	$12,590		$12,590		$12,590		$12,590	
Tuition: Out-State	$29,710		$29,710		$29,710		$29,710	
Tuition: Regional	$22,032		$22,032		$22,032		$22,032	
Mandatory fees per student	$1,976		$1,976		$1,976		$1,976	
FTE # of New Students: In-State	1		1		1		1	
FTE # of New Students: Out-State	1		1		1		1	
# of In-State FTE students transferring in from the institution's existing programs	1		1		1		1	
# of Out-State FTE students transferring in from the institution's existing programs	0		0		0		0	
Tuition: One Rate	0		0		0		0	
# of New Students								
TUITION AND FEES	Newly Generated Revenue	Revenue from existing programs	Newly Generated Revenue	Revenue from existing programs	Newly Generated Revenue	Revenue from existing programs	Newly Generated Revenue	Revenue from existing programs
First Year Students								
In-State tuition	$12,590.00	$12,590.00	$12,590.00	$12,590.00	$12,590.00	$12,590.00	$12,590.00	$12,590.00
Out-of-State tuition	$29,710.00	$0.00	$29,710.00	$0.00	$29,710.00	$0.00	$29,710.00	$0.00
Regional tuition								
Mandatory fees	$3,952.00	$1,976.00	$3,952.00	$1,976.00	$3,952.00	$1,976.00	$3,952.00	$1,976.00
One-Rate Tuition	$0.00		$0.00		$0.00		$0.00	
Second Year Students								
In-State tuition			$12,590.00	$12,590.00	$12,590.00	$12,590.00	$12,590.00	$12,590.00
Out-of-State tuition			$29,710.00	$0.00	$29,710.00	$0.00	$29,710.00	$0.00
Regional tuition								
Mandatory fees			$3,952.00	$1,976.00	$3,952.00	$1,976.00	$3,952.00	$1,976.00
One-Rate Tuition			$0.00		$0.00		$0.00	
Third Year Students								
In-State tuition					$12,590.00	$12,590.00	$12,590.00	$12,590.00
Out-of-State tuition					$29,710.00	$0.00	$29,710.00	$0.00
Regional tuition								
Mandatory fees					$3,952.00	$1,976.00	$3,952.00	$1,976.00
One-Rate Tuition					$0.00		$0.00	
Fourth Year Students								
In-State tuition							$12,590.00	$12,590.00
Out-of-State tuition							$29,710.00	$0.00
Regional tuition								
Mandatory fees							$3,952.00	$1,976.00
One-Rate Tuition							$0.00	
Total Tuition and Fees	**$46,252.00**	**$14,566.00**	**$92,504.00**	**$29,132.00**	**$138,756.00**	**$43,698.00**	**$185,008.00**	**$58,264.00**
GRANTS	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
CONTRACTS	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
OTHER (Specify)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Grants, Contracts, Other	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
TOTAL	**$46,252.00**	**$14,566.00**	**$92,504.00**	**$29,132.00**	**$138,756.00**	**$43,698.00**	**$185,008.00**	**$58,264.00**

NOTE: All of the above figures are estimates based on projections made by the institution submitting the proposal.

ACADEMIC PROGRAM BUDGET FORM

Use this form for programs that can be pursued on a full-time basis, part-time basis, or through a combination of full-time and part-tim attendance. **Page 2 of 3**

EXPENDITURE ESTIMATES

	Year 1 20_		Year 2 20_		Year 3 20_		Year 4 20_	
PERSONNEL SERVICES	Additional resources required for program	Expenditures from current resources	Additional resources required for program	Expenditures from current resources	Additional resources required for program	Expenditures from current resources	Additional resources required for program	Expenditures from current resources
Administrators	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Faculty	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Support Staff	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Others	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Fringe Benefits %	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Personnel	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
OPERATING EXPENSES								
Instructional Resources	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Other (specify)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Expenses	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
CAPITAL								
Facilities	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Equipment	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Capital	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
NET STUDENT ASSISTANCE								
Assistantships	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Fellowships	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Stipends/Scholarships	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Student Assistance	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
TOTAL EXPENDITURES	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**

NOTE: All of the above figures are estimates based on projections made by the institution submitting the proposal.

ACADEMIC PROGRAM BUDGET FORM

Use this form for programs that can be pursued on a full-time basis, part-time basis, or through a combination of full-time and part-tim attendance. **Page 3 of 3**

	Year 1 2019/20	Year 2 2020/21	Year 3 2021/22	Year 4 2022/23
BUDGET SUMMARY OF COMBINED EXISTING AND NEW PROGRAM				
Total Revenue	$60,818.00	$121,636.00	$182,454.00	$243,272.00
Total Expenses	$0.00	$0.00	$0.00	$0.00
Excess/Defeciency	**$60,818.00**	**$121,636.00**	**$182,454.00**	**$243,272.00**
BUDGET SUMMARY OF EXISTING PROGRAM ONLY				
Total Revenue	$14,566.00	$29,132.00	$43,698.00	$58,264.00
Total Expenses	$0.00	$0.00	$0.00	$0.00
Excess/Defeciency	**$14,566.00**	**$29,132.00**	**$43,698.00**	**$58,264.00**
BUDGET SUMMARY OF NEW PROGRAM ONLY				
Total of Newly Generated Revenue	$46,252.00	$92,504.00	$138,756.00	$185,008.00
Total of Additional Resources Required for Program	$0.00	$0.00	$0.00	$0.00
Excess/Deficiency	**$46,252.00**	**$92,504.00**	**$138,756.00**	**$185,008.00**

NOTE: All of the above figures are estimates based on projections made by the institution submitting the proposal.

Supporting Documentation from History

THE
UNIVERSITY
OF RHODE ISLAND

Anya Hanson <anyahanson@uri.edu>

Marine Technical Certificate

Rod Mather <rodmather@uri.edu> Tue, Nov 12, 2019 at 8:39 AM
To: Anya Hanson <anyahanson@uri.edu>

Hi Anya

I am happy to support the Proposal for a Marine Technical Certificate, and am equally happy for HIS396 to be included as one of the supporting courses.

best
Rod

[Quoted text hidden]
--
Rod Mather
Chair of the Department of History
Professor of Maritime History and Underwater Archaeology
Department of History
University of Rhode Island
401-874-4093

Curriculum

AQUACULTURE AND FISHERIES SCIENCE — *EFFECTIVE FALL 2020*

Student: **ID No.:** **Advisor:**

I. GENERAL EDUCATION *(min 40 cr)* 0

	Course No.	Grade
Knowledge		
A1. STEM	BIO 101/102*	
A2. Social and Behavioral Sciences	EEC 105*	
A3. Humanities		
A4. Arts and Design		
Competencies		
B1. Write effectively		
B2. Communicate effectively		
B3. Mathematical, statistical, computatio	MTH1	
B4. Information literacy		
Responsibilities		
C1. Civic knowledge & responsibilitiy		
(e.g. MAF100,220)		
C2. Global responsibilities		
C3. Diversity and inclusion (e.g. *MAF300*)		
Integrate & Apply		
D1. Ability to Synthesize (*e.g. AFS300, 440)*		
Grand Challenge		
G. Grand Challenge Course	AFS 105G	
Additional General Education		
Additional General Education		
Additional General Education		
Additional General Education		

II. PRE-PROFESSIONAL & BASIC SCIENCES

A. Introductory Professional Courses (10 credits)		
Foods from the Sea (3,1; F)	AFS105G/106	
Intro to Resource Econ (3; F,S)*	EEC105	
Natural Resource Conserv (3; F,S)	NRS100	
B. Basic Sciences (24 credits)		
Biology (8 cr)		
Principles of Biology I* (3; F,S)	BIO 101	
Principles of Biology I Lab (1; F,S)	BIO 103	
Principles of Biology II (3; F,S)	BIO 102	
Principles of Biology II Lab (1; F,S)	BIO 104	
Chemistry (4 cr)		
CHM 101 or 103 (3, F,S)	CHM	
CHM 102 or 105 (1; F,S)	CHM	
*Additional Basic Sciences** (min 12 cr)*		
Mathematics (MTH103/111/131/141)	MTH	
Additional Basic Sci (Physical Sciences)		
Additional Basic Sci (Ecology/Ecosystem)		
Additional Basic Sci (Computational/Stats)		

Course Credits Required: 120
Course Credits Completed:

Approved for Graduation:

Advisor: _____ Date: _____

III. PROFESSIONAL COURSES *(min. 30 cr total)* 0

Course Description:	Course No.	Grade	Cr.	Off:
Foundational Courses *(10 cr that count as supporting electives)*				
Shellfish Aquaculture	AFS 201 (3,1)			*F*
Finfish Aquaculture	AFS 202 (2,1)			*S*
Fisheries Science	AFS 215 (2,1)			*S*
Concentration Courses *(min. 20 cr; 12 from AFS)* 0				
Suggested Courses for Aquaculture Focus (choose from):				
Crustacean Aquaculture	AFS 362 (3)			*Alt S(o)*
Marine Finfish Aquaculture	AFS 432 (3)			*Alt.S(o)*
Salmonid Aquaculture	AFS 483 (3)			*Alt.F(e)*
Topics in Molluscan Aquaculture	AFS 581 (3)			*Alt S(e)*
Advanced Aquaculture Systems	AFS 584 (3)			*Alt S(e)*
Suggested Courses for Fisheries Focus (choose from):				
World Fishing Methods and Lab (3,1)	AFS 321/322			*F*
Fisheries Ecology (3)	AFS 415			*Alt.F(o)*
Fisheries Stock Management (3)	AFS 531			*Alt.S(e)*
Ecosystem Based Fisheries Sci. & Mn	AFS 560 (3)			*Alt.S(o)*
Common courses (choose from):				
Diseases of Aquatic Organisms	AFS 300 (3,1)			*S*
Aquaculture and the Environment	AFS 425 (3)			*Alt.F(o)*
Aqua. Food Production, Philippines	AFS 440 (3)			*J-term*
Marine Plastics	AFS 488 (3)			*S*
Advanced Siseases Aquatic Org	AFS 500 (3)			*Alt F(o)*
General Oceanography and/or	OCG 301 (3)			*F*
Marine Biology	BIO 390 (3,1)			*F,S*
Fish Physiology	AFS 486 (3)			*Alt.F(o)*
Additional Concentration Course***				
Additional Concentration Course***				

IV. INTERNSHIPS/INDEPENDENT PROJECTS *(min 3, <12)* 0

Special Project/Independent Study	AFS 391/2 (1-3)			*F,S,Sm*
Special Project/Independent Study	AFS 391/2 (1-3)			*F,S,Sm*
Special Project/Independent Study	AFS 491/2 (1-3)			*F,S,Sm*

V. SUPPORTING* (*min 15*) AND OTHER ELECTIVES** ##

Skills and Tools *(up to 9 cr)*				
Small Boats: Equipment & Operation	AFS 290 (3)			*F*
Basic Scuba Diving	AFS 270 (3)			*F,S*
Research Diving Methods	AFS 433 (3)			*F,S*
Additional supporting and other electives				
Advanced Diving	AFS 395 (3)			
Underwater Archaeology Field School	HIS 396 (3)			
Marine Technical Practicum	AFS 396 (3)			
Planning for Academic Success	URI101 (1)			*F*

* Some courses may count for more than one category. If so, do not double count credits in the total count.

** **Suggested Basic Science (check General Education catalog)** *Math*: Calculus (MTH131) is required for a fisheries focus; otherwise, either MTH103 or MTH111 fulfill the requirement; *Chem*: At least 2 sem. of Chem are needed if you plan to go to grad school (e.g. add CHM124/126). *Physical Sci*: any basic course in Geology (GEO), Oceanography (OCG), Physics (PHY); *Ecology/Ecosystem Science*: e.g. BIO262, NRS212, NRS223, or NRS234G; *Computer Sci and Statistics*: any course in CSC or STA (100, 200, 300 level; e.g. STA220 or STA308).

*** **Suggested Additional Concentration:** 300 or above courses in AFS, Marine Bio (BIO), Oceanography (OCG), Ecology/Ecosystem (NRS), Marine Affairs(MAF), Economics(EEC). **Suggested Supporting Electives:** courses 200 or above in Economics (EEC, ECN), Business (BUS), MAF, Anthropology(APG), Marine Bio(BIO), GEO, NRS, OCG, Animal and Veterinary Sciences (AVS), Sustainable Agriculture & Food Systems (SAF)

B.S. Aquaculture and Fisheries Science- Effective Fall 2019
Sample 4 Year Plan
College of the Environment and Life Sciences

Freshman Year *Fall* Semester

Course Code	Description	Cr	
*AFS 105G/106	Food from the Sea Lec/ Lab	4	
*BIO 101/103	Principles of Biology I/ Lab	4	
*EEC 105	Introduction to Resource Economics	3	
	*General Education	3	
	*General Education	3	
URI 101	Planning for Academic Success	1	
* Counting for General Education		15	0

Freshman Year *Spring* Semester 2020

Course Code	Description	Cr	
AFS 202	Finfish Aquaculture	3	
*BIO 102/104	Principles of Biology II/ Lab	4	
*OCG/*GEO	*Basic Science (Physical Sci)	3	
*MTH ____	Precalculus or Applied Calculus I	3	
	*General Education	3	
* From General Education Course Offerings		16	0

Year 1 Milestones: Earn at least 30 credits and a GPA of 2.0 or higher. Meet with your Advisor for AFTC option discussion.

Sophomore Year *Fall* Semester

Course Code	Description	Cr	
AFS 201	Shellfish Aquaculture	3	
*NRS 100	Natural Resource Conservation	3	
*CHM 103/105	Introduction Chemistry Lecture/Lab	4	
AFS 290	Supporting Elective (Mar Tech Cert)	3	
	Concentration (*e.g. AFS321/322*)	3	
* From General Education Course Offerings		16	0

Sophomore Year *Spring* Semester 2021

Course Code	Description	Cr	
e.g. AFS362/432	Concentration Course	3	
e.g. MAF300	Concentration Course	3	
e.g. BIO 262	Basic Science (Ecology/Ecosystem)	4	
AFS270	Supporting Elective (Mar Tech Cert)	3	
	*General Education	3	
* From General Education Course Offerings		16	0

Year 2 Milestones: Earn at least 64 credits and a GPA of 2.0 or higher. Meet with your Advisor to dicuss major, internships and research opprtunities.

Junior Year *Fall* Semester

Course Code	Description	Cr	
eg BIO360,OCG301	Concentration Course	3	
eg AFS486, 415	Concentration Course	3	
AFS433	Supporting Elective (Mar Tech Cert)	3	
	Basic Science (Computer Sci/Stats)	3	
	*General Education	3	
		15	0

Junior Year *Spring* Semester 2022

Course Code	Description	Cr	
AFS300	Concentration Course	3	
	Concentration (e.g. AFS 581/584/531)	3	
AFS 396	Supporting Elective (Mar Tech Cert)	3	
	**Special Projects or Internship	3	
	*General Education or Elective	3	
** could be done in the Summer		15	0

Year 3 Milestones: Earn at least 85 credits and a GPA of 2.0 or higher. Meet with your Advisor to prepare intent to graduate application for fall submissi

Senior Year *Fall* Semester

Course Code	Description	Cr	
eg AFS483, 415	Concentration Course	3	
eg BIO, MAF, NRS	Concentration Course	3	
eg BIO, MAF, NRS	Concentration Course	3	
	Basic Science	3	
	*General Education or Elective	3	
		15	0

Senior Year *Spring* Semester 2023

Course Code	Description	Cr	
eg AFS488	Concentration Course	3	
eg AFS432	Supporting Elective	3	
AFS 395	Supporting Elective (Mar Tech Cert)	3	
	*General Education	3	
	Elective	3	
		15	0

Year 4 Milestones: Earn 120 credits and a GPA of 2.0 or higher in CUM and CON. Complete all remaining required courses.

Total Credits to Graduate = 120

Effective Fall 2020