4-19-2018

Curricular Report No. 2017-18-11 from the Graduate Council to the Faculty Senate: Graduate Certificate in Aquaculture and Fisheries

University of Rhode Island Faculty Senate

THE
UNIVERSITY
OF RHODE ISLAND
FACULTY SENATE OFFICE
Green Hall, 35 Campus Avenue, Kingston, RI 02881 USA p: 401.874.2616

THINK BIG WE DO

Serial Number #17-18-37

TO: President David Dooley
FROM: Mark Conley, Chairperson of the Faculty Senate

1. The attached BILL titled, Curricular Report No. 2017-18-11 from the Graduate Council to the Faculty Senate: Graduate Certificate in Aquaculture and Fisheries, is forwarded for your consideration.

2. This BILL was adopted by vote of the Faculty Senate on April 19, 2018.

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 10, 2018 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.

Mark Conley
Chairperson of the Faculty Senate

April 19, 2018

ENDORSEMENT

TO: Chairperson of the Faculty Senate

FROM: President of the University

a. Approved ____.

b. Approved subject to Notice of the Council on Postsecondary Education ✓.

Noticed 6/20/18

c. Disapproved ____.

Signature of the President

4.26.18
(date)

THE GRADUATE SCHOOL - UNIVERSITY OF RHODE ISLAND
NEW PROGRAM REPORT FROM THE GRADUATE COUNCIL TO THE FACULTY SENATE
CURRICULAR REPORT 2017-2018-11; 26 March 2018

At Meeting No. 515 held on 26 March 2018, the Graduate Council approved the attached proposal that is now submitted to the Faculty Senate.

SECTION I
ABSTRACT AND BACKGROUND INFORMATION

ABSTRACT (modified from proposal)

The URI Graduate Certificate in Fisheries Aquaculture provides students with degrees in biological or environmental fields focused on advanced training needed to find professional employment in the areas of Aquaculture and Fisheries. The program also allows students to complete the requirements of the American Fisheries Society (AFS) Professional Certification Program at the Associate Fisheries Professional (AFP) level.

BACKGROUND (modified from proposal)

The goals of this program are consistent with the specific objectives of Professional Certification from the American Fisheries Society, which are (as stated in their webpage): "(1) to provide governmental and nongovernmental agencies and organizations, private firms, courts, and the general public with a definitive minimum standard of experience and education for aquaculture and fisheries professionals; and (2) to foster broader recognition of fisheries professionals as well educated and experienced, acting in the best interest of the public." These goals are consistent with the goals of our graduate certificate program.

SECTION II
RECOMMENDATION

The Graduate Council approved the proposal to create a **GRADUATE CERTIFICATE IN AQUACULTURE AND FISHERIES** at its Meeting No. 515 held on 26 March 2018, and forwards it to the Faculty Senate with a recommendation for approval.

THE
UNIVERSITY
OF RHODE ISLAND

Revised 12/2016

Abbreviated Proposal form
For All Programs including Certificates
No New Funding

A Proposal for: GRADUATE CERTIFICATE IN AQUACULTURE AND FISHERIES

Date: 2/23/18

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 - GRADUATE CERTIFICATE IN AQUACULTURE AND FISHERIES
Classification code (CIP) - 01.0303 (Aquaculture)

A4. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.

Initiation date	Fall 2018
First degree date	May 2019

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

A6. Description of institutional review and approval process

	Approval Date
Department	2/23/18
College	
CAC/Graduate Council	
Faculty Senate	
President of the University	

A7. Summary description of proposed program (not to exceed 2 pages)

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: 401-874-2917
Email: gomezchi@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 Graduate Certificate in Fisheries Aquaculture provides students with degrees in biological or environmental fields focused advanced training needed to find professional employment in the areas of Aquaculture and Fisheries. The program also allows students to complete the requirements of the American Fisheries Society (AFS) Professional Certification Program at the Associate Fisheries Professional (AFP) level. On completion of the Aquaculture and Fisheries graduate certificate, students will have the knowledge and skills to: (1) apply knowledge in a variety of disciplines and practical skills to address real-world problems in food security, as it relates to seafood; and (2) find employment in agencies and businesses involved in research, scholarly, and problem-solving endeavors in the field of Aquaculture and Fisheries.

The goals of this program are consistent with the specific objectives of Professional Certification from the American Fisheries Society, which are (as stated in their webpage): "(1) to provide governmental and nongovernmental agencies and organizations, private firms, courts, and the general public with a definitive minimum standard of experience and education for aquaculture and fisheries professionals; and (2) to foster broader recognition of fisheries professionals as well-educated and experienced, acting in the best interest of the public." These goals are consistent with the goals of our graduate certificate program.

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

Aquaculture and Fisheries professionals work on meeting the growing demands for food security and environmental stewardship in an era of population growth and environmental change. Aquaculture is one of the fastest growing sectors in US Agriculture, and Americans only produce about 5% of the seafood they eat (NOAA National Marine Fisheries Statistics, 2017).

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

According to the Bureau of Labor Statistics, employment of agricultural and food scientists is projected to grow around 9% from 2012 to 2022, about as fast as the average for all occupations. We envision that the emphasis in environmental and social sustainability of our programs will provide our students with an advantage in the job market, since job sectors addressing population growth, economic conditions, and environmental concerns (*i.e.* environmental scientists, climate change analysts, chief sustainability officers) are expected to grow faster than average. Salaries for

professionals with graduate certificates that can work in government or non-profit organizations start at $40,000, with a median pay of $68,910 in 2016.

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.

This program builds upon and complements undergraduate and graduate programs at URI in Aquaculture and Fisheries Science. The University of Rhode Island has one of the oldest and few stand-alone Bachelor in Science programs in Aquaculture and Fisheries in the U.S.; it is also the only AFS program in the New England region, with students qualifying for regional tuition. Moreover, our MS and PhD graduate programs in Aquaculture and Fisheries (Masters in Environmental Science and Management professional program, the 5-year Masters in Oceanography, and the research-based MS and PhD in Biological and Environmental Sciences) have experienced recent growth, mainly due to an influx of international students funded by the governments from Indonesian and Ghana. This growth is fueled by internationally-known successful research and outreach programs in Aquaculture and Fisheries at URI. This new professional Graduate Certificate program is consistent with and strengthens the core mission of the Department of Fisheries, Animal and Veterinary Sciences (FAVS), which is to perform teaching, research, and outreach supporting the sustainable production and care of terrestrial and aquatic animals used by humans, either for food, work, research, or pleasure/companionship. This mission is at the core of the Land Grant and Sea Grant missions of URI. Moreover, FAVS research, teaching and outreach missions fundamentally support the creation and maintenance of jobs in the areas of food and marine sciences, two areas of strength in Rhode Island's economy that are the center of the State's economic development plans (tourism, marine trades, food systems, seafood).

This program fits the URI Academic Plan in the following ways: *Goal 1. Transform undergraduate and graduate student learning and academic support with a firm commitment to student success and the development of knowledgeable, skilled, and engaged citizens prepared for an ever-changing world.* Our society is in need of citizens able to address how to provide safe, healthy, and economically, culturally, and ecologically sustainable food to a growing population. This program is designed to provide students with the tools needed to addressing those challenges. *Goal 2: Achieve high-impact, translational, and innovative research, scholarship, and creative work addressing State, regional, and world challenges to improve health, environmental sustainability, economic development, and quality of life.* Aquaculture and Fisheries are areas of growth worldwide, and a major focus of the Rhode Island economic plan. Our programs support the development of a blue, sustainable food economy. *Goal 3: Advance the internationalization of the University, develop students as globally engaged citizens, and develop meaningful international strategic partnerships*. We have been leaders at URI in the development of globally-relevant programs, establishing international partnerships in teaching, research, and outreach. This program builds upon these local and global programs in aquaculture and fisheries. *Goal 4: Diversity & Inclusion*: Our programs place an emphasis on the intrinsic value of preserving local food cultures and biodiversity, which is reflected in our courses, research, extension and service efforts.

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.

There are no similar programs in the State or the region, and, to our knowledge, the only other potentially similar graduate certificates in Aquaculture and Fisheries are at Oregon State University and University of Florida. This newly proposed program at URI, which integrates both Aquaculture and Fisheries, will provide another option to students with BS degrees in marine and environmental sciences to pursue professional careers in Aquaculture and Fisheries. As such, this program, which can be completed within the 4 years of a BS degree, complements the 5 year Masters of Oceanography at URI and the Masters in Environmental Science and Management (which takes about 1.5 years beyond the completion of the BS). The proposed graduate certificate will strengthen higher education through RI and the region.

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 in programs that qualify to apply for the Graduate Certificate are under existing agreements for undergraduate programs already established at URI.

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?

Students in biological, environmental or marine related majors at other institutions will be able to apply to complete this graduate certificate (see application information below in D6).

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

Yes

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

This graduate certificate proposal builds upon recent revisions to the Aquaculture and Fisheries Technology program (AFS). A revised curriculum advising sheet for the AFS undergraduate major

has been included in the proposal, showing how both programs integrate (see attached documentation). Students from other marine related programs will also be able to apply as soon as they fulfill requirements in the application process. These are:

Admission requirements: Applications should include: 1) college transcripts certifying successful completion of a bachelors degree in a biological, agricultural, or environmental field, 2) two letters of recommendation from peers, mentors, or colleagues attesting to your ability to complete graduate-level coursework, and 3) a personal written statement explaining why you are seeking a University of Rhode Island graduate certificate in fisheries and aquaculture. *GREs are not required.* Students are responsible for meeting the prerequisite requirements for individual courses, as applicable. Accepted applicants will be advised on which course prerequisites should be fulfilled prior or during the first semester in the program.

Graduate students currently enrolled at URI fill out the "Request to change/Add a Degree Program" form and have it approved by the certificate coordinator, Dr. Gomez-Chiarri. Currently enrolled undergraduate students can enroll in the certificate program but must apply through the Graduate School. Undergraduate students will receive their Certificate only after they have received their bachelor's degree. Applications for **Fall semester admission should be completed by 10 August** and applications for **Spring semester admission should be completed by 1 December**

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 builds upon and takes advantage of the resources already available for the undergraduate and graduate programs in Aquaculture and Fisheries 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).

Yes

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: Program requirements: 15 credits of graduate coursework that consists of at least 12 credits from courses in Aquaculture and Fisheries Science (AFS) at the 400 level or above. The remaining credits (3) are to be chosen from a variety of courses in marine, environmental, and social sciences at the University of Rhode Island, including but not limited to courses at the 400 or above level in BIO, EEC, MAF, NRS, and OCG. Course selection will be made in consultation between the student and their program advisor. Students are responsible for meeting the prerequisite requirements for individual courses, as applicable.

No new courses are proposed as part of this program – it relies on existing courses at URI.

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.

15 credits of graduate coursework that consists of at least 12 credits from courses in Aquaculture and Fisheries Science (AFS) at the 400 level or above. These courses will be chosen in consultation with the advisor (Gomez-Chiarri), based on: (a) previous courses taken by the student as part of the his/her undergraduate major; and (b) the student's specific career goals.

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

Of the 15 credits required, 3 will be electives to choose from a variety of courses in marine, environmental, and social sciences at the University of Rhode Island, including but not limited to courses at the 400 or above level in BIO, EEC, MAF, NRS, and OCG. Course selection will be made in consultation between the student and their program advisor.

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.

This program builds upon the recently revised undergraduate major in Aquaculture and Fisheries Science (120 credits). A total of 135 credits (15 credits added to the 120 credits of the undergraduate major) will be required. A typical curriculum sheet is attached to the form.

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

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

No

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.

None

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 Aquaculture and Fisheries graduate certificate, students will possess the research, scholarly, and technical and problem-solving skills necessary for employment in businesses and agencies, or in advanced study in the field of Aquaculture and Fisheries.

The Student Learning Outcomes related to this goal are:

(1) Apply knowledge from a variety of disciplines to solve real world problems in aquaculture and fisheries.
(2) Evaluate the importance of diversity, equity and justice, as well as the role of social factors (e.g. culture, economics, policy) on aquaculture and fisheries from local to global scales.
(3) Demonstrate the basic technical skills necessary for work in aquaculture and fisheries.
(4) Create local and global solutions to complex challenges in aquaculture and fisheries.

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

The student learning outcomes, which are consistent with the learning outcomes of the B.S. in the Aquaculture and Fisheries Technology (recently renamed Aquaculture and Fisheries Science), will be assessed by the Graduate Certificate Committee using the same rubrics used to assess the AFS B.S., but focusing on the 400 and above level courses (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 to the proposal.

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 Chair or the Department of Fisheries, Animal and Veterinary Science, Professor Marta Gomez-Chiarri (Aquatic Animal Health). Faculty involved in delivering the program include Assistant Professors Austin Humphries (Ecosystem Based Fisheries Science) and Coleen Suckling (Sustainable Aquaculture), Full Professors Terence Bradley (Finfish Aquaculture Development, Systems, Physiology) and Michael Rice (Shellfish Aquaculture Development), and the staff from the Fisheries Outreach Center (Kathy Castro, Laura Skrobe, and Mitch Hatzipetro). A core committee initially composed by Gomez-Chiarri, Bradley, and Rice will be involved in admission of students, advising, and program evaluation.

There are no new positions or reassignments. The faculty and staff listed above are already involved in delivering the courses and advising students as part of their current duties in the AFS BS and CELS graduate programs.

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.

Students currently enrolled in BS programs will be able to complete requirements for the graduate certificate within the 4 years required to complete their BS degree (135 credits spread in 4 years; see AFS BS revised milestones attached). Students holding a BS degree already would be able to complete requirements for the graduate certificate in either 1 semester at full time (depending on courses needed based on their career goals) or 2 semesters (7-8 credits per semester;). Part-time students from industry or government would be able to complete the certificate in 4 semesters.

We expect the following students will be interested in the program:

(1) Students currently enrolled in the BS in Aquaculture and Fisheries
(2) Students currently involved in the undergraduate programs in Marine Biology, Marine Affairs, and Natural Resources Sciences.
(3) Graduates from these programs at URI mentioned above
(4) Students with a BS in marine or environmental sciences majors from other universities.

We expect that these students will seek this graduate certificate program so they can:

(1) Improve specific skills in aquaculture and fisheries (for students currently in the AFS program or having completed the program).
(2) Add skills in aquaculture and fisheries to their current or previous majors (for students from other majors in biological and environmental sciences).
(3) Determine their interest and ability to perform graduate-level work before committing to a graduate program.
(4) Add a graduate certificate to their major without increasing time to graduation (in the time-frame.

Students will be selected by the Program Coordinator (Gomez-Chiarri) with the aid of a committee composed of two other members of the aquaculture and fisheries faculty and staff listed above. Selection will be based on the following criteria: 1) current enrollment or completion of Bachelors in Science or Bachelors in Arts in a biological, agricultural, or environmental field (based on college transcripts), 2) ability to complete graduate-level coursework (based on two letters of recommendation from peers, mentors, or colleagues), and 3) match or fit of career goals with program (based on a personal written statement explaining why the student is seeking a University

of Rhode Island graduate certificate in fisheries and aquaculture). *GREs are not required*. Students are responsible for meeting the prerequisite requirements for individual courses, as applicable. Students accepted into the program will be advised on which course prerequisites should be fulfilled prior or during the first semester in the program.

Graduate students currently enrolled at URI would fill out the "Request to change/Add a Degree Program" form and have it approved by the certificate coordinator, Dr. Gomez-Chiarri. Currently enrolled undergraduate students will be able enroll in the certificate program but must apply through the Graduate School: https://web.uri.edu/graduate-school/apply/. Undergraduate students will receive their Certificate only after they have received their bachelor's degree.

We expect that employees from international agencies or governments (such as the Indonesia Ministry of Fisheries or Ghana Higher Education institutions) will be interested in the program. This program will also be useful for employees in State (Rhode Island Department of Environmental Management), Federal (NOAA NMFS, US EPA, USDA ARS) or non-governmental (The Nature Conservancy, Save the Bay) agencies.

We expect to attract about 5 – 10 per year initially, building up to 10 - 15 per year. The number of initial graduates will be about 5 - 10, based on students currently enrolled in relevant majors.

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 two semesters if they take three classes per semester. Part-time students should be able to complete the program in four	Over 10	1-10	0

semesters. If students fail to complete the requirements in these time windows, we will have to determine what the obstacles are.			
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?

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 for the Aquaculture; no new expenditures will be incurred. Current funding as it exists is enough for carrying out the proposed program. See attached budget sheets and Statement of No Financial Impact from the URI Budget and Financial Planning Office.

Attachments:

1. Catalog Program Description.
2. Certificate Advising Sheet.
3. Graduate Program Assessment Plan
4. Aquaculture and Fisheries B.S. advising sheet integrated with graduate certificate.
5. Comparison of requirements of the American Fisheries Society (AFS) Professional Certification Program at the Associate Fisheries Professional (AFP) level with the course work provided by the Graduate Certificate in Aquaculture and Fisheries.
6. Support from other departments
7. Library Impact
8. Budget sheets and No impact letter

Aquaculture and Fisheries Graduate Certificate – Catalog Description

Graduate Certificate in Fisheries and Aquaculture Science

The URI Graduate Certificate in Fisheries Aquaculture provides students with degrees in biological or environmental fields focused advanced training needed to find professional employment in the areas of Aquaculture and Fisheries. The program also allows students to complete the requirements of the American Fisheries Society (AFS) Professional Certification Program at the Associate Fisheries Professional (AFP) level. On completion of the Aquaculture and Fisheries graduate certificate, students will have the knowledge and skills to: (1) apply knowledge in a variety of disciplines and practical skills to address real-world problems in food security, as it relates to seafood; and (2) find employment in agencies and businesses involved in research, scholarly, and problem-solving endeavors in the field of Aquaculture and Fisheries.

Students completing the Aquaculture and Fisheries Graduate Certificate program will practice advanced skills in class projects and specialty courses that take advantage of resources in marine sciences at the University of Rhode Island, including the Fisheries Center, freshwater aquaculture facilities, the Commercial Fisheries Center (a partnership with non-profit commercial fisheries associations), the Blount Aquaculture Research Laboratory, the Tuna Aquaculture Research Facility, and several research and teaching vessels. The Aquaculture and Fisheries Graduate Certificate does not require any new classes or FTEs. A broad set of existing class options can accommodate students from programs within or beyond the University of Rhode Island pursuing to complement their major in marine or aquatic sciences, environmental sciences, or marine affairs, with additional targeted skills and knowledge in aquaculture and fisheries.

Admission requirements: Applications should include: 1) college transcripts certifying current enrollment or successful completion of a bachelors degree in a biological, agricultural, or environmental field, 2) two letters of recommendation from peers, mentors, or colleagues attesting to your ability to complete graduate-level coursework, and 3) a personal written statement explaining why you are seeking a University of Rhode Island graduate certificate in fisheries and aquaculture. *GREs are not required.* Accepted applicants will be advised on which course prerequisites should be fulfilled prior or during the first semester in the program.

Graduate students currently enrolled at URI fill out the "Request to change/Add a Degree Program" form and have it approved by the certificate coordinator, Dr. Gomez-Chiarri. Currently enrolled undergraduate students can enroll in the certificate program but must apply through the Graduate School: https://web.uri.edu/graduate-school/apply/. Undergraduate students will receive their Certificate only after they have received their bachelor's degree. Applications for Fall semester admission should be completed by 10 August **and applications for** Spring semester admission should be completed by 1 December**.**

Program requirements: 15 credits of graduate coursework that consists of at least 12 credits from courses in Aquaculture and Fisheries Science (AFS) at the 400 level or above. The remaining credits (3) are to be chosen from a variety of courses in marine, environmental, and social sciences at the University of Rhode Island, including but not limited to courses at the 400 or above level in BIO, EEC, MAF, NRS, OCG, and WRT. Course selection will be made in consultation between the student and the program faculty advisor. Students are responsible for meeting the prerequisite requirements for individual courses, as applicable.

COLLEGE OF THE ENVIRONMENT AND LIFE SCIENCES (CELS)

Graduate Certificate in Aquaculture and Fisheries

1. Students applying for admission into the Aquaculture and Fisheries Certificate Program must do so through the URI Graduate School admission system. Applicants must have a bachelor's degree from an accredited University or College. URI Undergraduate students may apply to the certificate program after completion of at least 75 credits.
2. Apply to enroll through the Graduate School for the certificate of interest. (http://web.uri.edu/graduate-school/admission/). Indicate your expected graduation date.
3. Currently enrolled undergraduate students do not need to submit GRE scores or letters of recommendation.
4. Requirements may be satisfied by completing 15 credits from the courses listed below.
5. Students must receive a minimum grade of C in each class and an overall average of B (3.0) or higher.
6. Applicants may not transfer courses into a Graduate Certificate Program that were taken at institutions other than URI.
7. Courses may not be taken under pass-fail grade option.
8. Courses may not be used to apply to both the undergraduate major and certificate program. A total of 135 earned credits are needed.
9. Students must complete all certificate program requirements within 5 years of their date of matriculation.
10. Undergraduate students must register for at least one credit in a semester after they have been conferred their BSc degree.
11. All credits taken in a Graduate Certificate Program may be used to satisfy requirements of a closely related graduate degree program in which a student is concurrently matriculated.
12. Completion of your undergraduate degree - Attach a copy of this form to your undergraduate Intent to Graduate Application and drop off the packet to the Office of Academic & Student Affairs, 130 CBLS. Upon certification of your undergraduate degree the Dean will send an email to the Graduate School to confirm the courses listed below were not used toward the completion of an undergraduate degree.

Requirements: 12 credits to choose from the following core courses in consultation with your advisor:

AFS 415/416: Fisheries Ecology (Lec and Lab)*
AFS 425: Aquaculture and the Environment
AFS 426: Ecological Aquaculture
AFS 432: Marine Finfish Aquaculture
AFS 440: Aquatic Food Production in the Philippines**
AFS 483: Salmonid Aquaculture
AFS 486: Fish Physiology
AFS 500: Advanced Diseases of Aquatic Organisms*
AFS 503: Pathobiology
AFS 531: Fisheries Stock Assessment
AFS/OCG 560: Ecosystem-Based Fisheries Science & Management
AFS 581: Current Topics in Molluscan Aquaculture
AFS 584: Advanced Aquaculture Systems
AFS 586: Fish Nutrition

*Course revisions recently approved by CAC **This course is a new course; approval pending*

Additional 3 Credits from the core courses or from the following strengthening courses
(examples of selected courses from BIO, EEC, MAF, NRS, OCG, WRT**).**

BIO 412/512: Evolution and Diversity of Fishes
BIO 418: Ecology of Marine Plants
BIO 441/541: Environmental Physiology of Animals
BIO 455: Marine Ecology
EEC 440: Benefit-Cost Analysis
EEC/MAF 514: Economics of Marine Resources
MAF 413: Peoples of the Sea
MAF 461: Coastal Zone Management
MAF 465: GIS Applications in Coastal and Marine Management
MAF 582: Coastal Ecosystem Governance
MAF 521: Coastal Zone Law
NRS 509: Concepts in GIS and Remote Sensing in Env Science
NRS 414/514: Climate Change Science and Policy
NRS 501: Foundations of Restoration Ecology
NRS 527: Marine Protected Areas: An Interdisciplinary Analysis
NRS 532: Conservation Biology and Resource Economics
NRS 543: Public Engagement with Science
OCG 670: Fish Population Dynamics
OCG 673: Fisheries Oceanography
WRT 533: Graduate Writing in the Life Sciences

Students are responsible for meeting the prerequisite requirements for individual courses, as applicable.

Student's Name (Please Print) _____ Phone Number _____ Student ID Number _____

Undergraduate Major/ Graduation Date (Month/Year) _____ Certificate Matriculation Date _____ Certificate Completion Date _____

Course Number	Course Title/Semester/Year	Credits	Grade
	Total:		3.0 GPA or Higher

Aquaculture and Fisheries Graduate Program Director, Marta Gomez-Chiarri (gomezchi@uri.edu) _____ Date _____

CELS Dean's Signature _____ Date _____

THE
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OF OCEANOGRAPHY

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Narragansett Bay Campus, 215 South Ferry Road, Narragansett, RI 02882 USA p: 401.874.6222 www.gso.uri.edu

MEMORANDUM

17 April 2018

To: Prof. Marta Gomez-Chiarri, Fisheries, Animal and Veterinary Sciences, College of the Environment and Life Sciences

From: Brian Heikes, LOOC Chair BH

Re Graduate Certificate in Aquaculture and Fisheries New Program Assessment Plan Review and Approval

This memo and the attached SLOAA-LOOC review constitute approval of your New Program Assessment Plan for the 5-course 15-credit Graduate Certificate in Aquaculture and Fisheries. Good luck and speed with your full proposal.

Cc: E. Finan, N. Neff

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NEW CERTIFICATE ASSESSMENT PLAN REVIEW

Date SLOAA 1st review: 3/19/18
Date SLOAA review submitted to LOOC: 4/4/18
Date LOOC* review submitted to program: 4/17/18 Approved

Academic Program/Degree: Graduate Certificate Aquaculture and Fisheries
College: College of Environment and Life Science
Date New Program Assessment Plan Submitted: April 4, 2018 (to LOOC)
Faculty Member(s) Submitting Plan Proposal: Marta Gomez-Chiarri

FEEDBACK

Strengths:

SLOAA:

- The Assessment Plan details 4 specific skills, knowledge and abilities students will acquire as they earn the certificate which is strictly defined by one overarching goal area noted in the curriculum map.
- The certificate documentation highlights the value of its' advanced coursework in terms of a focus on the application of prior knowledge and the students ability to take courses in discipline-specific areas in order to achieve professional goals. The certificate builds purposefully on several identified undergraduate degree programs with expectations that students will have the foundational knowledge and skills and be challenged and supported to achieve mastery of the student learning outcomes through required and elective courses.
- The proposal includes helpful footnotes which provide for clearer understanding of the curricular design.

LOOC:

Suggestions for improvement:

SLOAA: (All suggestions were responded to by the program during preliminary communication and meetings.)

LOOC:

Issue(s) of note:

SLOAA:

- At this time, certificates are not required to submit biennial reports on the assessment of student learning outcomes. However, an assessment timeline was provided. Program faculty are encouraged to engage in the assessment process in this way, to formally track learning and respond to curricular or learning issues which may arise which could improve the learning outcomes for the students.

LOOC:

Assessment Plan Designation:

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: _____

Program Information		**Reviewer Ratings & Comments**				
Information box complete		☒ Yes ☐ Incomplete	***Suggestions:***			
Criteria		***Efficacy of Plan Description & Content***				***Suggestions for improvement***
		Less Developed	**Developing**	**Well Developed**	**Not addressed**	
PART I	**1. Program goals**					
	a. Broad statements of program learning goals	☐	☐	☒	☐	
	b. Limited in number (ideally 2-5)	☐	☐	☒	☐	
PART II	**2. Learning outcomes/competencies**					
	a. Linked to goals (numbered 1.1 etc.)	☐	☐	☒	☐	
	b. Each goal is represented by at least one outcome	☐	☐	☒	☐	One goal area noted which is acceptable for a certificate.
	c. Statements are observable/measurable	☐	☐	☒	☐	Well-constructed statements
	d. Directed at what students will know or be able to do	☐	☐	☒	☐	
	e. Reasonable number (ideally 1-3 per goal)	☐	☐	☒	☐	
	3. Curriculum Map					
	a. Program requirements are listed, developmentally when possible	☐	☐	☒	☐	
	b. Outcomes are linked to appropriate requirements	☐	☐	☒	☐	

	Criteria	Reviewer Ratings & Comments				
		Efficacy of Plan Description & Content				*Suggestions for improvement*
		Less Developed	**Developing**	**Well Developed**	**Not addressed**	**[Not Required At This Time.]**
PART III	**4. Assessment Timeline (3-year plan)**					
	a. Assessment Reporting Period 1 is thoroughly presented	☐	☐	☐	☐	
	b. Assessment Reporting Periods 2 and 3 are presented	☐	☐	☐	☐	
	c. All goals are represented by at least one outcome somewhere in the 3 reporting periods	☐	☐	☐	☐	
	d. Requirements are clearly stated and connected to outcomes (from Curriculum Map)	☐	☐	☐	☐	
	e. Evidence is stated for each designated outcome	☐	☐	☐	☐	
	f. Selection of evidence takes advantage of existing indicators	☐	☐	☐	☐	
	g. Evidence is stated in enough detail to guide assessment activities	☐	☐	☐	☐	
	h. Evidence is feasible for collection within the timeline	☐	☐	☐	☐	
	i. Methods for quantifying evidence are stated for each designated outcome	☐	☐	☐	☐	
	j. Methods are appropriate for evidence	☐	☐	☐	☐	

THE UNIVERSITY OF RHODE ISLAND

GRADUATE SCHOOL

Graduate Program Student Learning Outcomes Assessment Plan

For Accredited and Non-Accredited Programs

The Graduate School requests that each program have clearly articulated program goals (Section I) and student learning outcomes statements linked to curriculum and course experiences/requirements (Section II). This assessment plan will help programs determine the extent to which these outcomes are successfully being met through courses and other program requirements. As part of the plan, each program will also create an assessment timeline (Section III) indicating when and how learning outcomes assessment will take place.[1] [2]

Program Information:

Program:	Graduate Certificate in Aquaculture and Fisheries
Academic year plan submitted:	Spring 2018
Degree(s):	Graduate Certificate
Department Chair:	Marta Gomez-Chiarri
Program Director:	Marta Gomez-Chiarri
Accredited Program:	**X No ☐ Yes, next accreditation report due:**
Published learning outcomes (provide URL)**:**	Proposed new program

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 - On completion of the Aquaculture and Fisheries graduate certificate:

#1	Graduates will possess the research, scholarly, and technical and problem-solving skills necessary for employment in businesses and agencies, or in advanced study in the field of Aquaculture and Fisheries

[1] If you have questions or need assistance, please contact: Office of Student Learning, Outcome Assessment, and Accreditation 874-9517; 874-9379

[2] Accredited programs can provide supplemental documents that indicate the answers to these questions as long as specific page references are provided in each cell of the tables in this form. When the answers are not accessible in that way, cutting and pasting will be required.

THE UNIVERSITY OF RHODE ISLAND
GRADUATE SCHOOL

Graduate Program Student Learning Outcomes Assessment Plan
For Accredited and Non-Accredited Programs

II. Curriculum Mapping:

Program: Aquaculture and Fisheries Graduate Certificate

Map Key
I = Outcome Introduced
R = Outcome Reinforced
E = Outcome Emphasized

Student Learning Outcomes (Competencies) by Goal:		**Course Numbers/Program Requirements:**						
		***1** - AFS425, 426,440,560	***2** –AFS486,483,581,584,586	***3** – AFS415,531,560	***3**- AFS416,531 (Labs)	***4**- AFS433 and (elective in WRT)	****5** – Electives in BIO, NRS, OCG	****5** – Electives in MAF, EEC
Goal #1	1.1. Apply knowledge from a variety of disciplines to solve real-world problems in aquaculture and fisheries	E	E	E			E	
	1.2. Evaluate the importance of diversity, equity and justice, as well as the role of social factors (e.g. culture, economics, policy) on aquaculture and fisheries from local to global scales.	E						E
	1.3. Demonstrate the technical skills necessary for work in aquaculture and fisheries		E		E	E		
	1.4. Create local and global solutions to complex challenges in aquaculture and fisheries	E	E	E				

* Courses are grouped by the learning outcomes associated area of focus. Students select from these groups of courses depending on interest in focus area (career interests) and courses already taken previously. #1: Common courses to both Aquaculture and Fisheries; #2: Courses with a focus on aquaculture; #3: Courses with a focus on Fisheries; #4: Support courses providing technical skills related to field work in aquaculture and fisheries; #5: Electives.
**Students select one elective from one or the other group of courses depending on background, skills needed for professional work, and career interests.

NOTE regarding "E" designation: This is a graduate certificate and students must have graduate standing to be accepted. The certificate proposal defines the specific majors and course work that integrate directly into this certificate. Prior learning is expected to provide the introductory/reinforcement experience and opportunity for student preparedness for admittance to the certificate program. This course experiences in this map Emphasize the learning outcomes to mastery through the opportunity to *apply* prior learning.

THE UNIVERSITY OF RHODE ISLAND
GRADUATE SCHOOL

Graduate Program Student Learning Outcomes Assessment Plan For Accredited and Non-Accredited Programs

III. Assessment Timeline: Indicates when and how student learning will be assessed based on clear statements of learning outcomes and expectations. Refer to the curriculum map to draft a student learning outcomes assessment timeline. Specify a 6-year plan for assessment (3 two-year periods) in which you will assess all of your program's Goals with at least one student learning outcome representing each Goal.

Academic Years	Outcome(s)	Course(s) and Other Program Requirements	Assessment Evidence (direct/indirect)	Assessment Method
	WHICH outcome(s) will you examine in each period (by number, i.e. 1.1 etc.)?	WHERE will you look for evidence of student learning (i.e., what course(s)/program requirements)? Designate for each outcome.	WHAT student work or other evidence will you examine in order to generate conclusions and recommendations? Designate for each requirement.	HOW will you look at the evidence; what means will you use to quantify the evidence? Designate for each source of evidence.
Assessment Reporting Period 1 2016-18	#1. Describe the knowledge necessary for professional or academic work in the field of aquaculture and fisheries. This includes knowledge in the areas of ecology, oceanography, biology, physiology, pathology, nutrition, and genetics.	AFS 500 and 432 or 560 and or 531	Final Projects in AFS 500 (Diseases), AFS 432 (Marine Finfish Ecology) for aquaculture and AFS 560 (EBFSM), AFS 531 for fisheries	Projects for 5 students will be assessed using a modification of the GenEd STEM Knowledge rubric. At least 75% of students should reach the mastering level.
Assessment Reporting Period 2 2018-20	#2. Evaluate the importance of diversity, equity and justice, as well as the role of social factors (e.g. culture, economics, policy) on aquaculture and fisheries from local to global scales.	AFS425, 560	Final projects in AFS 425 (Aquaculture and the Environment) and AFS 560 (Ecosystem Based Fisheries Science and Management)	Projects will be evaluated using a compilation of the Global Awareness and Social Responsibilities rubrics. At least 75% of students should reach the mastering level.
Assessment Reporting Period 3 2020-22	#4. Create local and global solutions to complex challenges in aquaculture and fisheries.	AFS 500 and 432 or 560 and or 531	Final Projects in AFS 500 (Diseases), AFS 432 (Marine Finfish Ecology) for aquaculture and AFS 560 (EBFSM) and AFS 531 for fisheries;	Projects will be assessed using a modification of the Integrate and Apply rubric.

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, computation	MTH1__	
B4. Information literacy		
Responsibilities		
C1. Civic knowledge & responsibilitiy		
C2. Global responsibilities		
C3. Diversity and inclusion		
Integrate & Apply		
D1. Ability to Synthesize	AFS 300	
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 — Cr. 0

(min 28 credits required)

A. Biology (8 cr)	
Principles of Biology I* (3,1; F,S)	BIO101/103
Principles of Biology II (3,1; F,S)	BIO102/104
B. Chemistry (4 cr)	
CHM 101/102 or 103/105 (3,1; F,S)	CHM
C. Intro Aquaculture & Fisheries (10 cr)	
Foods from the Sea (3,1; F)	AFS105G/106
Intro to Resource Econ (3; F,S)*	EEC105
Natural Resource Conserv (3; F,S)	NRS100
*D. Additional Basic Sciences** (min 12 cr)*	
Precalculus or Calculus (MTH103/111/131, 3)	
Additional Basic Sci (Physical Sciences)	
Additional Basic Sci (Ecology/Ecosystem)	
Additional Basic Sci (Computational/Stats)	

Course Credits Required:	135
Course Credits Completed:	0

Approved for Graduation:

Advisor: _____ Date: _____

III. PROFESSIONAL CONCENTRATION *(min. 42 cr total)* — 0

Course Description:	Course No.	Grade	Cr.	Off:
Foundational Courses *(10 cr, 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 32 cr @ 300 or above, 12 @ 400 or above, 24 from AFS)			0	
Suggested Courses for Aquaculture Focus (choose from):				
Crustacean Aquaculture	AFS 362 (3)			*Alt.S(e)*
Marine Finfish Aquaculture	AFS 432 (3)			*Alt.S(o)*
Salmonid Aquaculture	AFS 483 (3)			*F*
Topics in Molluscan Aquaculture	AFS 581 (3)			*Alt.F(o)*
Advanced Aquaculture Systems	AFS 584 (3)			*AltS(e)*
Suggested Courses for Fisheries Focus (choose from):				
World Fishing Methods and Lab (3,1)	AFS 321/322			*F*
Fisheries Ecology and Laboratory (3,1)	AFS 415/416			*Alt.F(e)*
Fisheries Stock Management	AFS 531 (3)			*Alt.S(e)*
Ecosystem Based Fisheries Sci. & Mngt	AFS 560 (3)			*Alt.S(o)*
Fish Population Dynamics	OCG 670 (3)			*Alt S*
Fisheries Oceanography	OCG 673 (3)			*Alt S*
Common courses (choose from):				
Diseases Aquatic Organisms	AFS 300 (3,1)			*F*
Aquaculture and the Environment	AFS 425 (3)			*Alt.F(e)*
Aq. Food Production Philippines	AFS 440 (3)			*J term*
General Oceanography and/or	OCG 301 (3)			*F*
Marine Biology	BIO 360 (3,1)			*F,S*
Fish Physiology	AFS 486 (3)			*F*
Additional Concentration Course***				
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 491/2 (1-3)			*F,S,Sm*

V. SUPPORTING***(*min 21*) AND OTHER ELECTIVES — 0

Skills and Tools *(up to 9 cr)*				
Small Boats: Equipment & Operation	AFS 290 (3)			*F,S*
Basic Scuba Diving	AFS 270 (3)			*F,S*
Research Diving Methods	AFS 433 (3)			*F,S*
Additional supporting and other electives				
_____				
_____				
_____				
_____				
	URI101 (1)			

* 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, 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)

EXAMPLE

BS and Graduate Certificate in Aquaculture and Fisheries Science- Effective Fall 2018 - Sample 5 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	
*MTH _____	Precalculus or Applied Calculus I	3	
*EEC 105	Introduction to Resource Economics	3	
	*General Education	3	
URI 101	Planning for Academic Success	1	
* Counting for General Education		**15**	**0**

Freshman Year *Spring* Semester

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	
	*General Education (e.g. AFS132G)	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	
	Supporting Elective (e.g. skills)	3	
	*General Education	3	
		16	**0**

Sophomore Year *Spring* Semester

Course Code	Description	Cr	
	Concentration Course	3	
	Concentration Course	3	
e.g. BIO 262	Basic Science (Ecology/Ecosystem)	4	
	Supporting Elective (skills)	3	
	*General Education	3	
		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	
	Concentration Course	3	
	Concentration Course	3	
	Supporting Elective	3	
	Basic Science (Computer Sci/Stats)	3	
	Grad Certiticate course	3	
	*General Education	3	
		18	**0**

Junior Year *Spring* Semester

Course Code	Description	Cr	
	Concentration Course	3	
	Concentration Course	3	
	Supporting Elective	3	
	**Special Projects or Internship	3	
	Grad Certiticate course	3	
	*General Education or Elective	3	
** could be done in the Summer		**18**	**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 submission.

Senior Year *Fall* Semester

Course Code	Description	Cr	
	Concentration Course	3	
	Concentration Course	3	
	Supporting Elective	3	
	Basic Science	3	
	Grad Certiticate course	3	
	*General Education or Elective	3	
		18	**0**

Senior Year *Spring* Semester

Course Code	Description	Cr	
	Concentration Course	3	
	Supporting Elective	3	
	Supporting Elective	3	
	*General Education	3	
	Grad Certiticate course	3	
	Grad Certiticate course	3	
		18	**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 = **135**

Effective Fall 2018

COMPARISON OF REQUIREMENTS FROM THE AMERICAN FISHERIES SOCIETY CERTIFICATION WITH THE PROPOSED AFS GRADUATE CERTIFICATE AT URI

Subject Area (American Fisheries Society requirements for certification)	Course Number, Course Title (AFS program URI)
A. Fisheries and Aquatic Sciences. Four (4) courses, Two of which must be directly related to fisheries sciences and at least one must cover p**rinciples** of fisheries science and management.	**AFS105/106G Food from the Sea (4)** AFS 201 Finfish Aquaculture AFS 202 Shellfish Aquaculture **AFS 215 Fisheries Science** *AFS 290 - Small Boats* *AFS 270 - Basic Scuba Diving* AFS 300 Diseases of Aquatic Organisms AFS 321/322 World Fishing Methods AFS 362 Crustacean Aquaculture *AFS 391/392, 491/492 Special Projects or Internship* **AFS 415/416 Fisheries Ecology (Lecture and Lab)** *AFS 433 Research Diving* AFS 425 Aquaculture and the Environment AFS 426 Ecological Aquaculture AFS 432 Marine Finfish Aquaculture AFS 440 Aquatic Food Production in the Philippines AFS 483 Salmonid Aquaculture AFS 486 Fish Physiology **AFS 560 Ecosystem Based Fisheries Science and Management** AFS 581 Current Topics in Molluscan Aquaculture AFS 584 Advanced Aquaculture Systems AFS 586 Fish Nutrition **OCG 670 Fish Population Dynamics** OCG 673 Fisheries Oceanography
B. Other Biological Sciences courses, which when added to the above courses must total 30 semester hours.	BIO101/103 Introduction to Biology I and Lab (4) BIO102/104 Introduction to Biology II and lab (4) Basic Science Requirement (Ecosystem Science/Ecology)
C. Physical Sciences courses. Must total 15 semester hours.	CHM103/105 (4) Basic Science Requirement (Physical Sciences) Supporting electives in GEO, OCG
D. Mathematics and Statistics courses, which must include one calculus and one statistic or two statistics courses. Must total 6 semester hours.	MTH103, 111, 131 or 141 (Precalculus or Calculus) STA 220 and STA308 (3) or STA409 (3) Computational/Statistical Basic Science
E. Communications courses. Must total 9 semester hours.	Choose 3 (9 credits) from General Education list fulfilling B1 and B2 outcomes (communication and writing) NRS 543 Public Engagement with Science WRT 533 Seminar in Graduate Writing in the Life Sciences
F. Human Dimensions courses. Must total 6 semester hours	EEC105 Intro to Resource Economics (3) One more APG, MAF or EEC course (suggested from Gened list, counting as supporting electives)

In red are courses that count for the graduate certificate. In black are courses from BS in AFS

LIBRARY IMPACT STATEMENT (New Program Proposal)
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: _Graduate Certificate in Aquaculture and Fisheries_____

Department, College: _FAVS, CELS_____

Faculty Member: Marta Gomez-Chiarri_____

Date returned to Faculty: _2/28/18_____

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 areas. The allocation for monographs for the 2017-18 fiscal year is approximately $3800 for Fisheries, Animal and Veterinary Science. Other related subject areas also have allocations for purchase of monographs. The cost of journal subscriptions is not broken out by department. However, because the Library subscribes to many relevant databases of journal articles in relevant fields, we can likely provide all the journals this program currently needs.

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

   URI currently has access to all the essential journals and databases noted in the Faculty Questionnaire. As long as our funding remains adequate, these resources will be available for students in this program.

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

As there are no new courses for this program, no new library resources are required to support this program.

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

   Information Mastery classes are available on request at the University Libraries, should individual instructors want to bring their classes in for instruction.

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 associated with the support of this course.

rev 3-2-17

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BUDGET AND FINANCIAL PLANNING
Adams House, 85 Upper College Road, Kingston, RI 02881 USA p: 401.874.2509 f: 401.874.5824 uri.edu/budget

DATE: March 9, 2018

TO: Dr. Nasser H. Zawia
Dean, Graduate School

Andrea Rusnock
Associate Dean, Graduate School

FROM: Linda Barrett
Director, Budget and Financial Planning

SUBJECT: Proposal for Graduate Certificate in Aquaculture and Fisheries

As requested in an email from Marta Gomez-Chiarri, Professor and Chairperson of the Department of Fisheries, Animal and Veterinary Sciences, dated February 26, 2018, the Budget and Financial Planning Office has reviewed the budget related to the proposal for a Graduate Certificate in Aquaculture and Fisheries.

The Budget and Financial Planning Office, including communication with Enrollment Services, concurs that the request for a Graduate Certificate in Aquaculture and Fisheries 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
Laura Beauvais
John Kirby
Cheryl Hinkson
John Humphrey
Dean Libutti
Matt Bodah
Marta Gomez-Chiarri
Colleen Robillard

Office/BudgetImpactStatements/GradCertinaquacultureandfisheries/BudgetImpactStatementLetterFinal

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. **Page 1 of 3**

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

REVENUE ESTIMATES

	Year 1 2019		Year 2 2020		Year 3 2021		Year 4 2022	
Tuition: In-State	$13,226		$13,760		$13,760		$13,760	
Tuition: Out-State	$25,854		$26,236		$26,236		$26,236	
Tuition: Regional	$19,840		$20,640		$20,640		$20,640	
Mandatory fees per student	$1,598		$1,712		$1,712		$1,712	
FTE # of New Students: In-State	1		1		1		1	
FTE # of New Students: Out-State	1		1		1		1	
FTE # of New Students: Regional	1		1		1		1	
# of In-State FTE students transferring in from the institution's existing programs	0		0		0		0	
# of Out-State FTE students transferring in from the institution's existing programs	0		0		0		0	
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	$13,226.00	$0.00	$13,760.00	$0.00	$13,760.00	$0.00	$13,760.00	$0.00
Out-of-State tuition	$25,854.00	$0.00	$26,236.00	$0.00	$26,236.00	$0.00	$26,236.00	$0.00
Regional tuition	$19,840.00		$20,640.00		$20,640.00		$20,640.00	
Mandatory fees	$4,794.00	$0.00	$5,136.00	$0.00	$5,136.00	$0.00	$5,136.00	$0.00
Second Year Students								
In-State tuition			$13,226.00	$0.00	$13,760.00	$0.00	$13,760.00	$0.00
Out-of-State tuition			$25,854.00	$0.00	$26,236.00	$0.00	$26,236.00	$0.00
Regional tuition								
Mandatory fees			$3,196.00	$0.00	$3,424.00	$0.00	$3,424.00	$0.00
Third Year Students								
In-State tuition								
Out-of-State tuition								
Regional tuition								
Mandatory fees								
Fourth Year Students								
In-State tuition								
Out-of-State tuition								
Regional tuition								
Mandatory fees								
Total Tuition and Fees	**$63,714.00**	**$0.00**	**$108,048.00**	**$0.00**	**$109,192.00**	**$0.00**	**$109,192.00**	**$0.00**
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	**$63,714.00**	**$0.00**	**$108,048.00**	**$0.00**	**$109,192.00**	**$0.00**	**$109,192.00**	**$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-time attendance.

This is not a new program, simply adding focus areas to the major

EXPENDITURE ESTIMATES

	Year 1 2018/19		Year 2 2019/20		Year 3 2020/21		Year 4 2021/22	
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-time attendance.

	Year 1 2018/19	Year 2 2019/20	Year 3 2020/21	Year 4 2021/22
BUDGET SUMMARY OF COMBINED EXISTING AND NEW PROGRAM				
Total Revenue	$63,714.00	$108,048.00	$109,192.00	$109,192.00
Total Expenses	$0.00	$0.00	$0.00	$0.00
Excess/Defeciency	**$63,714.00**	**$108,048.00**	**$109,192.00**	**$109,192.00**
BUDGET SUMMARY OF EXISTING PROGRAM ONLY				
Total Revenue	$0.00	$0.00	$0.00	$0.00
Total Expenses	$0.00	$0.00	$0.00	$0.00
Excess/Defeciency	**$0.00**	**$0.00**	**$0.00**	**$0.00**
BUDGET SUMMARY OF NEW PROGRAM ONLY				
Total of Newly Generated Revenue	$63,714.00	$108,048.00	$109,192.00	$109,192.00
Total of Additional Resources Required for	$0.00	$0.00	$0.00	$0.00
Excess/Deficiency	**$63,714.00**	**$108,048.00**	**$109,192.00**	**$109,192.00**

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