10-20-2016

The Five Hundred and Thirty-Fourth Report of the Curricular Affairs Committee: Curricular Proposals.

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 #16-17—2B

TO: President David Dooley
FROM: W. Michael Sullivan, Chairperson of the Faculty Senate

1. The attached BILL titled, The Five Hundred and Thirty-Fourth Report of the Curricular Affairs Committee: Curricular Proposals, is forwarded for your consideration.

2. This BILL was adopted by vote of the Faculty Senate on October 20, 2016.

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 November 10, 2016 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.

W. Michael Sullivan
Chairperson of the Faculty Senate

October 20, 2016

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 ____.

c. Disapproved ____.

Signature of the President

11.1.16
(date)

THE
UNIVERSITY
OF RHODE ISLAND
FACULTY SENATE OFFICE

THINK BIG WE DO

UNIVERSITY OF RHODE ISLAND FACULTY SENATE

October 20, 2016

Faculty Senate Curricular Affairs Committee
Five Hundred and Thirty-Fourth Report

At the September 26, 2016 meeting of the Curricular Affairs 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

CURRICULAR CHANGES

A. COLLEGE OF ARTS AND SCIENCES:

a. Economics – BA and BS: (Appendix A)

Require students entering the major to have passed the two economics principles courses (ECN 201 and 202) with a C or better. They will be required to have passed an appropriate mathematics course with a C or better. Students in the Bachelor of Arts must now take a course in statistics. They can only substitute 3 rather than 6 credits from other departments for their economics elective credits and this substitution must be approved and filed with the Dean before the course is taken. Students in the Bachelor of Science must now complete a calculus course before taking the calculus based intermediate theory courses or the required course in mathematical economics.

B. COLLEGE OF THE ENVIRONMENT AND LIFE SCIENCES:

a. Marine Biology – BS: (Appendix B)

These changes enhance an Existing Program – B.S. Marine Biology in the Department of Biological Sciences (CELS). The addition of courses outside of BIO to the list of marine biology electives that count towards the major will enhance the interdisciplinary scope of the MBio major, will likely increase undergraduate enrollment in the OCG courses, will assist double majors (MBio/AFS; MBio/OCE) use these courses towards completion of both majors, and will increase the number of courses available to students seeking to complete the MBio minor.

THE
UNIVERSITY
OF RHODE ISLAND
Notice of Change RIBGHE

APPENDIX A

Revised 10-2009

Notice of Change for Economics BA, BS
Date: February 8, 2016

A. PROGRAM INFORMATION

1. Name of institution
University of Rhode Island

2. Name of department, division, school or college
Department: Economics
College: Arts and Sciences

3. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.
Initiation date: Spring 2017 or sooner
First degree date: May 2017

4. Intended location of the program
Kingston

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

Students entering the major are now required to have passed the two economics principles courses (Ecn 201 and 202) with a C or better. They are required to have passed an appropriate mathematics course with a C or better. Students in the bachelor of arts must now take a course in statistics. They can only substitute 3 rather than 6 credits from other departments for their economics elective credits and this substitution must be approved and filed with the Dean before the course is taken. Students in the bachelor of science must now complete a calculus course before taking the calculus based intermediate theory courses or the required course in mathematical economics.

Justification: We increasingly find incoming students unprepared for the major. This creates difficulties in maintaining the necessary 2.0 average in major courses and ability to reason quantitatively in all courses, especially in the senior capstone seminar. In several cases students who did not do well enough to maintain their standing as business majors were advised to major in economics when one of the reasons they lost their CBA qualification was they got poor grades in the core economics courses. We would like the ability to help those students find more appropriate fields of study or to do remedial work so they are better prepared in economics.

Some students transferring to economics from other BS degrees want to take the economics BS even though they have done poorly in calculus. This creates difficulty as they struggle mightily when they take Economics 375, Intro. to Quantitative Methods I , generally in their last semester.

The new requirements are not particularly onerous but they should limit the number of students who are unprepared or take economics for the wrong reasons, and signal that the discipline may be more rigorous than students have been lead to believe.

When students have only three elective courses in the major it seems inappropriate that two of them can come from outside the major. The past practice has been that such courses could gain after the fact approval and while the current chair has tried to limit this practice it is hard to do. Making STA 308 a pre-requisite for all economics students – rather than an optional replacement for an elective course - solves some of this problem and should improve quantitative reasoning skills for the BA students. Limiting outside electives to one and requiring pre-approval should solve the quality control problem.

If applicable, please include the existing URI catalog language and proposed catalog language changes that relate to your request. (Included separately.)

6. Signature of the President

David M. Dooley

Economics

The Department of Economics offers a Bachelor of Arts (B.A.) and a Bachelor of Science (B.S.) degree in economics. -The Bachelor of Arts degree provides a deep knowledge of the world's economy in the best traditions of the liberal arts. The B.S. (Applied) is designed for students who are interested in a somewhat more quantitative approach to the field with, perhaps, the goal of gaining a position that requires a working knowledge of economic analysis. A basic knowledge of calculus is required for the B.S. in Applied Economics. The B.S. (Theory and Methods) includes in-depth coursework in the Department of Mathematics and is designed for students planning on graduate work in economics.

Faculty:- Professor ~~Bodah,~~ McIntyre, *chairperson.*- Professors Burkett, Lardaro, ~~McIntyre,~~ Mead, Miller~~, and Ramsay~~; Associate Professor Van Horn; Assistant Professors Anderson, Molloy, ~~Van Horn~~and Yang; Lecturers Dupuis, Jain, and ~~Yang~~Sayanak; Professors Emeriti Barnett, Ramsay, Starkey, and Suzawa.

~~**BACHELOR OF ARTS**~~

BACHELOR OF ARTS

Students selecting this field must complete a minimum of 30 credits (maximum 48) in economics, including ECN 201 and 202 (6), 305 and 306 (6), 324 or 327 (3), 323 or 328 (3), and 445. (323 and 324 have calculus as a pre-requisite).

At least 9 credits must be completed from economics courses numbered 300 or above in addition to the core requirements. Students must achieve a minimum grade of C in both ECN 201 and ECN 202 or attain the permission of the department chair before majoring in economics.

In addition, students must complete:

MTH 107, MTH 111, MTH 131, MTH 141 or BUS 111 with a grade of C or higher

STA 308 or BUS 210

Students may substitute up to ~~six~~three credits from related courses taught by other departments. These substitutions must be approved by the economics department chairperson and filed with the Office of the Dean. ~~Three of these credits can be from statistics BUS 210, 212, STA 308, 409, or 412 and do not require departmental approval. Students planning to do graduate work in economics are encouraged to take ECN 375, 376 and at least one semester of statistics.~~ before taking the course.

If you are planning to do graduate work in economics, you are strongly encouraged to pursue a B.S. degree in economics.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above. In addition, students must have a G.P.A. of at least 2.00 overall and 2.00 in their major to graduate.

~~**BACHELOR OF SCIENCE**~~

BACHELOR OF SCIENCE

Students in this curriculum may elect one of two options,- applied economics or- economic theory and methods,- and must inform the dean's office of the option.

Applied Economics~~. A minimum of 31 credits in economics including ECN 201, 202, 305, 327, 328, 375, 376, and 445. In addition, students must complete BUS 212 or MTH 451 or STA 308.~~

~~**Economic Theory and Methods.**~~ A minimum of 31 credits in economics including ECN 201, 202, 305, 327 or 324, 328 or 323, 375, 376, 445, and ~~445.~~ at least two additional ECN courses numbered 300 or above.

Students must achieve a minimum grade of C in both ECN 201 and ECN 202 or attain the permission of the department chair.

In addition, students must complete: BUS 210, STA 308, STA 309 or MTH 451 and MTH 131 or MTH 141 with a grade of C or higher before taking ECN 323, ECN 324, and ECN 375.

Economic Theory and Methods A minimum of 31 credits in Economics including: ECN 201, 202, 305, 324 or 327, 323 or 328, 376, 445 and at least three additional ECN courses numbered 300 or above.

Students must achieve a minimum grade of C in both ECN 201 and ECN 202 or attain the permission of the department chair.

In addition students must complete MTH 141, 142, 215, 243, 307, and 244 or 442 or 435. ~~This option is recommended for students preparing for graduate study in economics.~~

A total of 120 credits is required for graduation.

In addition, students must have a G.P.A. of at least 2.00 overall and 2.00 in their major to graduate.

Economics

The Department of Economics offers a Bachelor of Arts (B.A.) and a Bachelor of Science (B.S.) degree in economics. The Bachelor of Arts degree provides a deep knowledge of the world's economy in the best traditions of the liberal arts. The B.S. (Applied) is designed for students who are interested in a somewhat more quantitative approach to the field with, perhaps, the goal of gaining a position that requires a working knowledge of economic analysis. A basic knowledge of calculus is required for the B.S. in Applied Economics. The B.S. (Theory and Methods) includes in-depth coursework in the Department of Mathematics and is designed for students planning on graduate work in economics.

Faculty: Professor McIntyre, *chairperson.* Professors Burkett, Lardaro, Mead, Miller; Associate Professor Van Horn; Assistant Professors Anderson, Molloy, and Yang; Lecturers Dupuis, Jain, and Sayanak; Professors Emeriti Barnett, Ramsay, Starkey, and Suzawa.

BACHELOR OF ARTS

Students selecting this field must complete a minimum of 30 credits (maximum 48) in economics, including ECN 201 and 202 (6), 305 and 306 (6), 324 or 327 (3), 323 or 328 (3), and 445 (323 and 324 have calculus as a pre-requisite).

At least 9 credits must be completed from economics courses numbered 300 or above in addition to the core requirements. Students must achieve a minimum grade of C in both ECN 201 and ECN 202 or attain the permission of the department chair before majoring in economics.

In addition, students must complete:

MTH 107, MTH 111, MTH 131, MTH 141 or BUS 111 with a grade of C or higher

STA 308 or BUS 210

Students may substitute up to three credits from related courses taught by other departments. These substitutions must be approved by the economics department chairperson and filed with the Office of the Dean before taking the course.

If you are planning to do graduate work in economics, you are strongly encouraged to pursue a B.S. degree in economics.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above. In addition, students must have a G.P.A. of at least 2.00 overall and 2.00 in their major to graduate.

BACHELOR OF SCIENCE

Students in this curriculum may elect one of two options, applied economics or economic theory and methods, and must inform the dean's office of the option.

Applied Economics A minimum of 31 credits in economics including ECN 201, 202, 305, 327 or 324, 328 or 323, 375, 376, 445, and at least two additional ECN courses numbered 300 or above.

Students must achieve a minimum grade of C in both ECN 201 and ECN 202 or attain the permission of the department chair.

In addition, students must complete: BUS 210, STA 308, STA 309 or MTH 451 and MTH 131 or MTH 141 with a grade of C or higher before taking ECN 323, ECN 324, and ECN 375.

Economic Theory and Methods A minimum of 31 credits in Economics including: ECN 201, 202, 305, 324 or 327, 323 or 328, 376, 445 and at least three additional ECN courses numbered 300 or above.

Students must achieve a minimum grade of C in both ECN 201 and ECN 202 or attain the permission of the department chair.

In addition students must complete MTH 141, 142, 215, 243, 307, and 244 or 442 or 435.

A total of 120 credits is required for graduation. In addition, students must have a G.P.A. of at least 2.00 overall and 2.00 in their major to graduate.

THE UNIVERSITY OF RHODE ISLAND

Mary Michelini <mary_bradizza@uri.edu>

Fwd: catalog changes for economics

Richard Mcintyre <mcintyre@uri.edu> Tue, Aug 23, 2016 at 2:38 PM
To: Mary Michelini <mary_bradizza@uri.edu>

Here is #3.

---------- Forwarded message ----------
From: **Deborah Rosen** <drosen@uri.edu>
Date: Tue, Aug 23, 2016 at 2:25 PM
Subject: Re: catalog changes for economics
To: Richard Mcintyre <mcintyre@uri.edu>
Cc: Peggy Boyd <pfergus@uri.edu>

Ric,
Peg is on vacation but I've looked this over and we are fine with the change. It should not significantly impact our numbers in those courses.

Deborah Rosen, Ph.D.
Associate Dean College of Business Administration
Executive Director URI Transportation Center

On Tue, Aug 23, 2016 at 11:46 AM, Richard Mcintyre <mcintyre@uri.edu> wrote:

> Hi Peg,
>
> I never received the note I need saying CBA is ok with these changes. Could you send me that as soon as you can. We want to be in the first wave of things facsen considers this fall.
>
> r
>
> **Richard McIntyre**
> **Professor, Chair, Department of Economics**
> **University of Rhode Island**
> **807 Chafee Social Science Center**
> 401-874-4126
>
> On Tue, May 24, 2016 at 2:48 PM, Richard Mcintyre <mcintyre@uri.edu> wrote:
>
> > Peg, can you send me a note saying CBA is ok with these changes for the BA or does it have to be from Deb? I think it will have no impact on your enrollments but we need it anyway.
> >
> > r
> >
> > **Richard McIntyre**
> > **Professor, Chair, Department of Economics**
> > **University of Rhode Island**
> > **807 Chafee Social Science Center**
> > 401-874-4126
> >
> > On Tue, May 24, 2016 at 2:21 PM, Peggy Boyd <pfergus@uri.edu> wrote:
> >
> > > Thanks Rick, I forwarded this on to our academic advisors.

peg

Peg Ferguson Boyd
Assistant Dean University of Rhode Island
College of Business Administration
mfboyd@uri.edu
p: 401-874-2337
v: 401-874-4314
f: 401-874-2-4312
www/uri.edu/business

On Tue, May 24, 2016 at 11:34 AM, Richard Mcintyre <mcintyre@uri.edu> wrote:

> Mes amies,
>
> As I believe I let you know we are making some changes in our programs to be sure students are prepared for a major in economics. In particular, for BA students we will now require "MTH 107, MTH 111, MTH 131, MTH 141 or BUS 111 with a grade of C or higher" as well as STA 308 or BUS 210. If you could please send me an acknowledgement of this change we will include it in our final proposal.
>
> Most business students transferring or double majoring have been going the BS route although that may now change. There is no change in the math pre-req for them. They must pass a calculus course with a C or better, which may be important to know for advising purposes.
>
> Both BA and BS students will now be required to have a C or better in Ecn 201 and 202. This may also affect advising.
>
> Thanks and I look forward to receiving your acknowledgement of the math and stat change for the BA students.
>
> r
>
> Richard McIntyre
> Professor, Chair, Department of Economics
> University of Rhode Island
> 807 Chafee Social Science Center
> 401-874-4126

THE UNIVERSITY OF RHODE ISLAND

Mary Michelini <mary_bradizza@uri.edu>

Fwd: catalog changes for economics

1 message

Richard Mcintyre <mcintyre@uri.edu> Tue, Aug 23, 2016 at 11:42 AM
To: Mary Michelini <mary_bradizza@uri.edu>

FYI
---------- Forwarded message ----------
From: **James Baglama** <jbaglama@uri.edu>
Date: Tue, May 24, 2016 at 11:25 AM
Subject: Re: catalog changes for economics
To: Richard Mcintyre <mcintyre@uri.edu>

Hi, Ric.

These changes are OK with the math department.

Best,
Jim

****
James Baglama
Professor and Chair
Department of Mathematics
University of Rhode Island
jbaglama@uri.edu
http://www.math.uri.edu/~jbaglama
Phone: 401-874-2709
Fax: 401-874-4454
****

On May 24, 2016, at 11:23 AM, Richard Mcintyre <mcintyre@uri.edu> wrote:

> Jim,
>
> Given that there is no math requirement in the new gen ed we are adding language to our BA program: "MTH 107, MTH 111, MTH 131, MTH 141 or BUS 111 with a grade of C or higher."
>
> MTH 107 is what we will advise them to take but this covers students who have taken more advanced courses. The grade requirement is new. The reasoning is that if they can't pass MTH 107 they should really consider a different major.
>
> If I could get an acknowledgement that you are ok with this I will include it in our final proposal.
>
> Thanks,
>
> ric
>
> Richard McIntyre
> Professor, Chair, Department of Economics
> University of Rhode Island
> 807 Chafee Social Science Center
> 401-874-4126

THE UNIVERSITY OF RHODE ISLAND

Mary Michelini <mary_bradizza@uri.edu>

Fwd: econ catalog change and stats

1 message

Richard Mcintyre <mcintyre@uri.edu> Tue, Aug 23, 2016 at 11:42 AM
To: Mary Michelini <mary_bradizza@uri.edu>

---------- Forwarded message ----------
From: **Joan Peckham** <joan@cs.uri.edu>
Date: Tue, May 24, 2016 at 5:16 PM
Subject: Re: econ catalog change and stats
To: Ric McIntyre <mcintyre@uri.edu>

Rick, This is okay. Thank you for the reminder.

I will remind the statisticians of this likely increase in enrollments and we will include this in our planning. When do you expect this likely increase to hit our 308 classes?

Joan
> On May 24, 2016, at 11:17 AM, Richard Mcintyre <mcintyre@uri.edu> wrote:
>
> Joan,
>
> You may recall that some time ago I asked you whether your department could handle us changing the BA requirements in economics to include STA 308. It is currently required for BS students. The BAs could take either STA 308 or BUS 210 so most of the students that come to us from BUS will take the latter. Based on current enrollment trends I expect this will increase demand by no more than 25 seats per semester.
>
> If you could send me an acknowledgement I will be able to include it in the final version of our proposal. Thanks,
>
> r
>
> Richard McIntyre
> Professor, Chair, Department of Economics
> University of Rhode Island
> 807 Chafee Social Science Center
> 401-874-4126

THE
UNIVERSITY
OF RHODE ISLAND
Notice of Change RIBGHE

APPENDIX B

Revised 10-2009

Notice of Change for BS Marine Biology (CELS)
Date: December 2015

A. PROGRAM INFORMATION

1. Name of institution
University of Rhode Island

2. Name of department, division, school or college
Department: Biological Sciences
College: CELS

3. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.
Initiation date: 2016
First degree date: 2017

4. Intended location of the program
Kingston campus

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

These changes enhance an Existing Program – B.S. Marine Biology in the Department of Biological Sciences (CELS). The addition of courses outside of BIO to the list of marine biology electives that count towards the major will enhance the interdisciplinary scope of the MBio major, will likely increase undergraduate enrollment in the OCG courses, will assist double majors (MBio/AFS; MBio/OCE) use these courses towards completion of both majors, and will increase the number of courses available to students seeking to complete the MBio minor.

If applicable, please include the existing URI catalog language and proposed catalog language changes that relate to your request.

The Major..... The balance of the 36 credits must be selected from the following Marine Biology electives: AFS **415,** 486; AVS 440, BIO 345, 354, 355, 365, 412, 418, 441, 455, 457, 469, 475, 485, 563; **OCE 575**; OCG 420, **480, 561,** 576. .....

Courses to be added as B.S. Marine Biology electives as indicated above in red:

AFS 415: Fishery Science
LEC: (3 crs.) Biology of aquatic resource animals, fisheries mensuration and assessment, fisheries ecology, fishing methods, aquatic resource management and conservation, fish and shellfish farming. (Lec. 3) Pre: AFS 315 and college mathematics; concurrent registration in 416.

OCE 575: Marine Bioacoustics
LEC: (3 crs.) Introduction to marine mammal hearing, sound production, and the uses of sound for communication and echolocation; dolphin sonars; analysis and processing of marine mammal signals including passive tracking; the effects of noise on marine mammals. (Lec. 3) Pre: OCE 471 or permission of instructor.

OCG 480: Introduction To Marine Pollution
LEC: (3 crs.) An introductory course in marine pollution emphasizing geochemical aspects of the sources, transport, and fate of pollutants in the coastal marine environment. (Lec. 3) Pre: one semester of general chemistry (CHM 101 or 103). One semester of general geosciences (GEO 100 or 103) is recommended. Not for graduate credit.

OCG 561: Biological Oceanography
LEC: (4 crs.) Dynamics of marine ecosystems; patterns of production and distribution of plankton, benthos, and nekton in relationship to their environment. (Lec. 3, Lab. 2) Pre: general ecology.

6. Signature of the President

David M. Dooley

B. S. MARINE BIOLOGY
College of the Environment and Life Sciences

Department: Biological Sciences
Advisor Contact: Dr. Jacqueline Webb (Faculty Coordinator) E-mail: urimbio@etal.uri.edu
Websites: http://cels.uri.edu/bio/BIO_MBcurric.aspx
http://web.uri.edu/marbio/
Credits: 120

The Major. *The B S. Marine Biology* program encompasses a rigorous curriculum stressing a strong foundation in biological sciences as well as in chemistry, math, physics and oceanography. It prepares students for further study in graduate school, and for a broad range of careers. All majors start their freshman year with a seminar on Topics in Marine Biology (equivalent to URI 101). After a year of Introductory Biology (which may be satisfied by AP BIO credit), students take the introductory Marine Biology course, Genetics, and choose three core courses in Biological Sciences. Marine Biology elective courses can be taken as soon as course prerequisites are met. Students may also choose from among other marine biology elective courses offered by other marine-related programs such as Aquaculture and Fisheries Technology, Marine Affairs, and Oceanography.

The Faculty in the marine biology program are actively involved in research in a wide variety of fields, including functional and developmental morphology of fishes, sensory biology of fishes, ecology and genomics of marine algae and seaweeds, behavior and physiology of marine organisms, salt marsh ecology, and impacts of climate change.

Experiential Learning. Students are encouraged to participate in research directed by faculty in Biological Sciences, in other departments in the College of the Environment and Life Sciences, and in the Graduate School of Oceanography (e.g., via the Coastal Fellows Program, the NSF-EPSCoR Fellows Program, or the Graduate School of Oceanography's REU-SURFO Program), or to become involved in off-campus research opportunities. Internships in research, outreach and education may take place at various sites, such as the RI Department of Environmental Management, the Mystic Aquarium, the Roger Williams Zoo, Save the Bay, and the Naval Undersea Warfare Center. URI offers credit for the Study Abroad program at the Bermuda Institute of Ocean Sciences (www.bios.edu, Fall semester program) and the Woods Hole SEA Semester program (www.sea.edu), where students can spend a semester taking courses and doing research in the field and/or aboard ship.

Advising and Mentoring. After transferring from UC into CELS (with 30 earned credits, at least a C in BIO 101-104, C- in CHM 101, and a GPA $\geq$2.0), each student is assigned to a Marine Biology faculty advisor. The Marine Biology Program Coordinator sends out a weekly e-newsletter and other notices to all majors and other interested students with information about courses, jobs, internships, and special lectures and other activities of interest. In addition, Marine Biology Peer Mentors are knowledgeable about curriculum and other matters and hold walk-in office hours.

Program Requirements. *Marine Biology requirements.* Majors must complete 36 credits in biological sciences including 2 semesters of Principles of Biology (BIO 101/103, 102/104), Topics in Marine Biology (BIO 130), General Genetics (BIO 352) and Marine Biology (BIO 360). Of the remaining 19 credits, one course must be chosen from 3 of the 5 core areas (Cell and Development, BIO 302, 311, 341; Ecology and Evolution, BIO 262, 272; Molecular Biology, BIO 437; Organismal Diversity, BIO 321, 323, 354, 365, 366, 404, 412, 417, MIC 211; and Physiology, BIO 201, 346). Students choose the balance of 36 credits in the major from among the marine biology electives (e.g., BIO 345, 355, 365, 412, 418, 441, 455, 457, 469, 475, 485, 563, AVS 415, 486, 440, OCE 575, and OCG 420, 480, 561, 576). At least 2 BIO laboratory courses must be completed (excluding BIO 103, 104, 360, and independent study/research). A maximum of 3 credits of special problems, independent study, or research (491, 492, 493, 494, or 495) from one of the following programs – AFS, AVS, BCH, BIO, MIC, NRS, PLS, OCG – may be used to fulfill major credit requirements. *A minimum GPA of 2.0 in BIO courses used to satisfy the major is required.*

Additional requirements. Students must also complete 2 semesters of calculus (MTH 131, 132 or MTH 141, 142) or 1 semester each of calculus and statistics (MTH 131 or 141, and STA 308), 2 semesters of general chemistry with lab (CHM 101, 102, 112, 114 or CHM 191, 192), 2 semesters of organic chemistry with lab (CHM 227, 228, 226) or 1 semester each of organic chemistry with lab and biochemistry (CHM 124, 126, BCH 311), 2 semesters of physics with lab (PHY 111, 112, 185, 186 or PHY 203, 204, 273, 274), 1 semester of oceanography (OCG 301 or 451), and 40 credits of the University's General Education requirements as described on page 4 (new in Fall 2016). *Transfer from University College to the College of the Environment and Life Sciences as a Marine Biology major (or coding as such) requires completion of BIO 101, 103, 102, 104 with minimum grades of C and CHM 101 with a minimum grade of C–.*

BACHELOR OF SCIENCE
MARINE BIOLOGY

B.S. in Marine Biology – Program Requirements	
Core Requirements (17 credits)	*Required (17 credits)*: Principles of Biology I, II (BIO 101/103*, 102/104*); Topics in Marine Biology (BIO 130); General Genetics (BIO 352); Marine Biology (BIO 360) **minimum grades of C required*
BIO Core Courses and Marine Biology Electives (19 credits) (including 2 BIO laboratory courses required) *Other courses in marine biology - by petition or pre-approval of transfer credit* ***Taught at the Bermuda Institute of Ocean Sciences*	*Choose one course from 3 of the following 5 BIO core areas (at least 9 credits)*: Cell and Development: BIO 302, 311, 341 Ecology and Evolution: BIO 262, 272 Molecular Biology: BIO 437 Organismal Diversity: BIO 321, 323, 354, 365, 366, 404, 412, 417; MIC 211 Physiology: BIO 201, 346
	Choose the balance of 36 credits from among these Marine Biology electives: Marine Environmental Physiology (BIO 345) Marine Invertebrates of Southern New England (BIO 355) Biology of Algae (BIO 365) Evolution and Diversity of Fishes (BIO 412) Ecology of Marine Plants (BIO 418) Environmental Physiology of Animals (BIO 441) Marine Ecology (BIO 455)/ Marine Ecology Laboratory (BIO 457) Salt Marsh Ecology (BIO 485) BIOS**: Tropical Marine Invertebrates (BIO 469), Coral Reef Ecology (BIO 475), Tropical Marine Biology Research (BIO 495) Directed Research/Special Problems (AFS, AVS, BCH, BIO, MIC, NRS, PLS 491, 492; OCG 493, 494) Biology and Ecology of Fishes (BIO 563) Fishery Science (AFS 415) Seminar on Marine Mammals (AVS 440) Marine Bioacoustics (OCE 575) Deep Sea Biology (OCG 420) Introduction to Marine Pollution (OCG 480) Biological Oceanography (OCG 561) Marine Microbiology (OCG 576)
Mathematics	Calculus I and II (MTH 131, 132 OR MTH 141, 142) ***OR*** One semester each of Calculus (MTH 131 or 141) & Statistics (STA 308)
Chemistry	General Chemistry I and II with lab (CHM 101, 102; 112, 114) ***AND*** Organic Chemistry I and II with lab (CHM 227, 228, 226) ***OR*** Introduction to Organic Chemistry with lab and Biochemistry (CHM 124, 126; BCH 311)
Physics	General Physics I and II with laboratories (PHY 111, 112; 185, 186)
Oceanography	General Oceanography (OCG 301) ***OR*** Oceanographic Science (OCG 451)
General Education Requirements	40 credits of General Education courses as described on page 4.
Remarks	Students must take 2 laboratory courses in Biology in addition to BIO 101/103, 102/104, and 360, excluding independent study/research. No more than 3 credits of Research/Special Problems (491, 492, 493, 494, or 495) may be used towards the major. A total of 36 credits in BIO courses is required. 120 credits are required for graduation. *Students must maintain a 2.00 grade point average in BIO courses used to meet graduation requirements. Transfer to CELS as a Marine Biology major (or coding as such) requires 30 credits including BIO 101, 103, 102, and 104 with grades of C or better and CHM 101 with a grade of C– or better.*

Approved 1/2016

B.S. Marine Biology Academic Worksheet

BIOLOGY REQUIREMENTS [ ] CREDITS

Required BIO Courses (17 credits)

BIO 101, 103 _____ (4 credits – min. grades of C required)
BIO 102, 104 _____ (4 credits – min. grades of C required)
BIO 130 _____ (1 credit)
BIO 352 _____ (4 credits)
BIO 360 _____ (4 credits)

Core BIO Courses (3 courses required; 9 credits minimum)

Core Area	*Core courses*	
_____	_____ (____ credits)	**BIO Lab Courses** (2) in addition to BIO 103, 104 and 360
_____	_____ (____ credits)	_____
_____	_____ (____ credits)	_____

Marine Biology Electives* (balance of 36 credits)

_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)

BIO GPA (min. 2.0 required) _____

*UP TO 3 CREDITS OF INDEPENDENT STUDY/RESEARCH (491, 492, 493, 494, OR 495) IN ONE OF THE FOLLOWING PROGRAMS MAY BE USED FOR MARINE BIOLOGY ELECTIVES: AFS, AVS, BCH, BIO, MIC, NRS, PLS OR OCG. ADDITIONAL RESEARCH CREDITS COUNT AS FREE ELECTIVES.

ADDITIONAL SCIENCE REQUIREMENTS [ ] CREDITS

OCEANOGRAPHY (3 CREDITS)

OCG 301 OR OCG 451 _____

CHEMISTRY (15 OR 16 CREDITS)

CHM 101*, 102 _____, _____ (*min. grade C– required)
CHM 112, 114 _____, _____
CHM 227, 228, AND 226 _____, _____, _____ **OR** CHM 124, 126 AND BCH 311 _____, _____, _____

MATHEMATICS (6, 7 OR 8 CREDITS)

MTH 131 OR MTH 141 _____
MTH 132 OR MTH 142 OR STA 308 _____

PHYSICS (8 CREDITS)

PHY 111, 185 _____, _____
PHY 112, 186 _____, _____

GENERAL EDUCATION REQUIREMENTS (EFFECTIVE FALL 2016) [40] CREDITS

SEE next page.

FREE ELECTIVES [ ] CREDITS

TOTAL – 120 REQUIRED FOR GRADUATION [ ] **CREDITS**

GENERAL EDUCATION REQUIREMENTS
COLLEGE OF THE ENVIRONMENT AND LIFE SCIENCES
-- EFFECTIVE FALL 2016 --

General Education Requirements - 12 Outcomes, 40 Credits NOTE: 3 credits are required for each outcome; courses may satisfy more than one outcome, but credits cannot be double counted toward the 40 credit total. No more than 12 credits of general education courses may be taken from the same course code. One Grand Challenges course is required.			
	Course	Grade	Credits
KNOWLEDGE			
A1. STEM	BIO101/103*		4
A2. Social & Behavioral Science			
A3. Humanities			
A 4. Arts & Design			
COMPETENCIES			
B1. Write Effectively			
B2. Communicate Effectively			
B3. Mathematical, statistical, or computational strategies	MTH 131*		3
B4. Information Literacy			
RESPONSIBILITIES			
C1. Civic knowledge & responsibilities			
C2. Global responsibilities	BIO 102/104*		4
C3. Cultural competencies			
INTEGRATE & APPLY			
D1. Ability to synthesize			
GRAND CHALLENGE			
G. At least 1 of the courses above must also be a "G" course			NA
GENERAL EDUCATION ELECTIVES (additional general education courses for total of 40 credits)			
CHM 101*			3
TOTAL GENERAL EDUCATION CREDITS			
Pre-populated courses with * are required for the BS Marine Biology degree, but may also be used to satisfy general education requirements			

FREE ELECTIVES (PLEASE LIST COURSES AND CREDITS BELOW)

_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)
_____ (____ credits)

FREE ELECTIVE CREDITS _____

B.S. MARINE BIOLOGY	
FIRST YEAR FALL	FIRST YEAR SPRING
BIO 101/103 (4) CHM 101/102 or Gen Ed (3-4) MTH 111 or MTH 131 (3) Gen Ed (3-4) BIO 130 (1)	BIO 102/104 (4) CHM 112/114 or 101/102 (4) MTH 131, 132, or STA 308 (3) Gen Ed (3-4)
15-16 credits	**14-15 credits**
SECOND YEAR FALL	SECOND YEAR SPRING
BIO 360 or BIO core course (3-4) CHM 124/126 or 227 or 112/114 (4) Elective or MTH 132 or STA 308 (3-4) Gen Ed (3-4) *Optional*: Gen Ed or elective (3-4)*	BIO 360 or BIO core course (3-4) BIO 360 or Marine Biology elective (3-4) CHM 124/126 or 227 or 228 or BCH 311 (3-5) Gen Ed (3-4) *Optional*: Gen Ed or elective (3-4)*
14-17 credits	**14-17 credits**
THIRD YEAR FALL**	THIRD YEAR SPRING**
BIO 352 or BIO core (3-4) PHY 111/185 (4) CHM 226 and/or 228 or BCH 311 or elective (3-5) Gen Ed (3-4) *Optional*: elective (3-4)*	BIO 352 or BIO core course (3-4) Marine Biology elective (3-4) PHY 112/186 (4) Gen Ed or BCH 311 (3 or 4) *Optional*: elective (3-4)*
14-17 credits	**14-17 credits**
FOURTH YEAR FALL**	FOURTH YEAR SPRING**
Marine Biology elective (3-4) Marine Biology elective (3-4) Gen Ed (3-4) OCG 301 or elective (3-4) *Optional*: elective (3-4)*	Marine Biology elective (3-4) Marine Biology elective or elective (3-4) Gen Ed or elective (3-4) OCG 451 or elective (3-4) *Optional*: elective (3-4)*
14-17 credits	**14-17 credits**

*Consider including when fewer than 15 credits total for other courses.
**Study abroad /full-time internship; substitute required courses for electives in other semesters.

B.S. MARINE BIOLOGY — TRANSFER	
SECOND YEAR FALL	SECOND YEAR SPRING
BIO 101/103 (4) CHM 101/102 (4) MTH 111 or MTH 131 (3) Gen Ed or elective (3-4)	BIO 102/104 (4) CHM 112/114 (4) MTH 131, 132 or STA 308 (3) Gen Ed or elective (3-4)
14-15 credits	**14-15 credits**
THIRD YEAR FALL	THIRD YEAR SPRING
BIO 360 or BIO core course* (3-4) CHM 124/126 or 227 (4) Elective or MTH 132 or STA 308 (3-4) MBIO elective*, Gen Ed or elective (3-4) *Optional*: MBIO elective*, Gen Ed or elective (3-4)**	BIO 352 or BIO core course* (3-4) BIO 360 or MBIO elective* (3-4) CHM 228 or BCH 311 (3-5) MBIO elective*, Gen Ed or elective (3-4) *Optional*: MBIO elective*, Gen Ed or elective (3-4) **
14-17 credits	**14-17 credits**
FOURTH YEAR FALL	FOURTH YEAR SPRING
BIO core course* (3-4) PHY 111/185 (4) CHM 226 or BCH 311 or elective (3-5) OCG 301 or MBIO elective* (3-4) *Optional*: MBIO elective*, Gen Ed or elective (3-4) **	BIO core course* (3-4) Marine Biology elective* (3-4) PHY 112/186 (4) OCG 451 or MBIO elective* (3-4) *Optional*: MBIO elective*, Gen Ed or elective (3-4) **
14-17 credits	**14-17 credits**

**Consider including when fewer than 15 credits total for other courses.
*A total of 19 credits of BIO core + MBIO electives are required (i.e., 7 X 3-credit courses, 5 X 4-credit courses, or a combination of 3 and 4 credit courses).

From: **Marta Gomez-Chiarri** gomezchi@uri.edu
Subject: Re: Need approval to add your courses to MBio elective course list
Date: February 10, 2016 at 9:36 AM
To: Jacqueline Webb jacqueline_webb@uri.edu

Dear Jackie,

I support the request of including AFS415 in the Marine Biology curriculum as an elective.

Please let me know if you need anything else. I will send in the next month a list of revisions to the AFS curriculum and other courses you may want to include as electives in the Marine Biology curriculum.

Cheers,

Marta

> On Feb 8, 2016, at 8:07 PM, Jacqueline Webb <jacqueline_webb@uri.edu> wrote:
>
> Dear Marta, Chris and David:
>
> We would like to add AFS 415, OCE 575, OCG 480 and OCG 561 to the list of Marine Biology electives that count towards the BS Marine Biology major. I don't believe that AFS 415 has been taken by MBio majors recently, but the OCE and OCG courses have been taken by a small number of highly qualified students, but they have needed to file a petition for these courses to count towards the major.
>
> We are seeking your approval to list these courses in the MBio curriculum sheet (**attached; in yellow**), which would eliminate the need for petitions for these courses. This change will assist a small number of students initially, but these courses may attract an increasing number of students going forward. Most importantly, the addition of these courses will enhance the interdisciplinary scope of the MBio major, will likely increase undergraduate enrollment in the OCG courses, and will assist double majors (MBio/AFS; MBio/OCE) use these courses towards completion of both majors.
>
> Are there any other courses that we should consider? **Marta** - I believe you mentioned a new Aquaculture course, but I have no information about it.
>
> **For the purpose of getting approval from the various curricular committees, we need an email from each of you** indicating your approval to have the courses offered by your particular department (as listed above) count towards the MBio curriculum.
>
> Thanks for your support of the MBio students!
>
> Best wishes,
>
> Jackie
> <BS Mar Bio _01_2016_WITH proposed additions.pdf>
>
> Dr. Jacqueline F. Webb
> Professor of Biological Sciences
> Coordinator, Marine Biology Program
> Chair, URI Council for Research
> University of Rhode Island
> 120 Flagg Road, CBLS 293
> Kingston, RI 02881
> Phone: 401-874-2609
> **NEW E-mail**: jacqueline_webb@uri.edu
> Website: http://WebbLabURI.wordpress.com

From: **Jacqueline Webb** jacqueline_webb@uri.edu
Subject: Fwd: Need approval to add your courses to MBio elective course list
Date: March 1, 2016 at 12:03 PM
To:

From: David Smith <dcsmith@uri.edu>
Subject: **Re: Need approval to add your courses to MBio elective course list**
Date: March 1, 2016 at 11:58:07 AM EST
To: Jacqueline Webb <jacqueline_webb@uri.edu>

Dear Jackie,

I would appreciate it if you would add both OCG 480 and OCG 561 to your approved course list. As we discussed, I think your senior students would do well in our classes.

Thanks,
David

> On Feb 8, 2016, at 8:07 PM, Jacqueline Webb <jacqueline_webb@uri.edu> wrote:
>
> Dear Marta, Chris and David:
>
> We would like to add AFS 415, OCE 575, OCG 480 and OCG 561 to the list of Marine Biology electives that count towards the BS Marine Biology major. I don't believe that AFS 415 has been taken by MBio majors recently, but the OCE and OCG courses have been taken by a small number of highly qualified students, but they have needed to file a petition for these courses to count towards the major.
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> Jackie
> <BS Mar Bio _01_2016_WITH proposed additions.pdf>

Dr. Jacqueline F. Webb
Professor of Biological Sciences
Coordinator, Marine Biology Program
Chair, URI Council for Research
University of Rhode Island
120 Flagg Road, CBLS 293
Kingston, RI 02881
Phone: 401-874-2609
NEW E-mail: jacqueline_webb@uri.edu
Website: http://WebbLabURI.wordpress.com

From: **Chris Baxter** baxter@egr.uri.edu
Subject: Re: Need approval to add your courses to MBio elective course list
Date: February 15, 2016 at 8:12 AM
To: Jacqueline Webb jacqueline_webb@uri.edu

Jackie,

I approve these changes.

Chris

On Mon, Feb 8, 2016 at 8:07 PM, Jacqueline Webb <jacqueline_webb@uri.edu> wrote:

> Dear Marta, Chris and David:
>
> We would like to add AFS 415, OCE 575, OCG 480 and OCG 561 to the list of Marine Biology electives that count towards the BS Marine Biology major. I don't believe that AFS 415 has been taken by MBio majors recently, but the OCE and OCG courses have been taken by a small number of highly qualified students, but they have needed to file a petition for these courses to count towards the major.
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>
> Best wishes,
>
> Jackie

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