4-19-2018

The Five Hundred and Forty-eighth 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 #17-18-38B

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

1. The attached BILL titled, the Five Hundred and Forty-eighth 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 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 ____.

c. Disapproved ____.

Signature of the President

4.26.18
(date)

THE
UNIVERSITY
OF RHODE ISLAND
FACULTY SENATE OFFICE

THINK BIG WE DO™

UNIVERSITY OF RHODE ISLAND FACULTY SENATE
April 19, 2018

Faculty Senate Curricular Affairs Committee
Five Hundred and Forty-eighth Report

At the March 26, 2018 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

PROGRAM PROPOSALS

COLLEGE OF ARTS AND SCIENCES:
Computer Science and Statistics Department:
Creation of a Minor in Web Programming: (see Appendix B)
This minor in Web Programming is a response to a strong need in the state and beyond for graduates with computing skills. Computer Science majors will fulfill many of those positions, but there is also a need for graduates in other majors to obtain specific programming skills to bring to their desired occupations. We have been working with CommerceRI to develop this minor to meet the specific needs of employers. And they have helped to recruit students in applicable majors to begin taking the courses required for this minor.

Course requirements:
20 credits: CSC 106 (4), CSC 201 (4), CSC 271 (4), CSC 372 (4), CSC 399 (4).

BA – Film Studies Major: (see Appendix C)
Add FLM 214 and FLM 220 as options for students.
FLM 214 is an elective critical studies course for the Film/Media major/minor, and a General Education course covering both Integrate & Apply and Write Effectively. This will be the first part of a two-course sequence (with FLM 215, History of Television II), which can be taken on its own or as part of the sequence. This course will allow students to understand the history of television as it relates to American history, culture, politics, technology, business, and art, and to see, through the lens of television programming, how the medium has created and reflected individual and national identities, and shaped new ways to consider what television is, how it is made, who watches it, and how it is consumed.

FLM 220 will provide a much needed intermediary course in the Film/Media production curriculum between FLM 110: Introduction to Film/Media Technology and FLM 351: Topics in Film/Media Production. Currently, the step between FLM 110 and FLM 351 is too large, and students are often not prepared for 300-level production work. This course will provide flexibility through topics to keep up with both technology and equipment changes. Students will be able to augment and/or strengthen their capacities in film/media techniques, technology and software for specific use in film/media related projects and in preparation for work in the industry. FLM 220 will provide depth in students' knowledge-base of production aesthetics and techniques and will enhance their knowledge in preparation for more challenging production courses.

Philosophy Department:

BA in Philosophy: (see Appendix D)

The Department of Philosophy offers a Bachelor of Arts degree. The degree requires 33-48 credits in the major. Among those credits, majors must take: a course in logic (PHL 101); a course (PHL 205) targeting philosophical skills (e.g., close reading, analysis of philosophical argumentation); a course in ethics (PHL 212 or 314); two history courses (Ancient Philosophy (PHL 321) and Modern Philosophy: Descartes to Kant (PHL 323); at least one course from PHL 341 (Introduction to Metaphysics), PHL 342 (Knowledge, Belief and Truth), and PHL 452 (Philosophy of Science); and one course from PHL 204 (Human Nature), PHL 318 (Power/Justice: Contemporary Critical Philosophies), PHL 324 (Recent European Philosophy) or PHL 346 (Existential Problems in Human Life). In addition to these requirements, majors must take a capstone course (PHL 490, Senior Seminar in Philosophy).

At a department meeting we decided to delete PHL 204 as an option from the PHL 204, 318, 324, 346 group. (It will still be offered as an elective.) The reasons for this are: 1. None of our other groups from which a student must choose a course had more than 3 courses, so it is simpler and more consistent, 2. Removing 204 from this group might help boost enrollments in these other 300 level courses which we also deem more important within the major, and also, 3. We think there is some potential subject overlap between 204 and 346 and of the two, we think it better to have our majors take the more rigorous 346.

PHL 204 would also be removed from the department's curriculum sheet and academic map

COLLEGE OF ENGINEERING:

BS in Chemical Engineering: (see Appendix G)

The Chemical Engineering program is proposing the following changes in the B.S. degree requirements:

- Add NUE 391 and 392 as professional elective options for all Chemical Engineering Tracks.
- Maximum of 6 credits in CHE 491 and 492 can be used to satisfy "professional elective requirements"
- In Traditional Track, create a science elective option to replace the professional elective option as an automatic substitution for CHM 432. The science elective course options are CMB 311, 352, 421, 464; BIO 341; CHM 427, 521; PHY 430.
- In Pharmaceutical track, Replace BPS 303 and 305 (total of 4 credits) with BPS 315 (4 credits) (pending approval of BPS 315 as a new course).

BS in Electrical Engineering: (see Appendix H)

Currently, the curriculum allows professional electives to be drawn from a list; this change adds a new course in robotics, ELE/MCE/OCE 456, to the list. The catalog language change appears in the second footnote.

BS in Industrial and Systems Engineering: (see Appendix I)

The Industrial and Systems Engineering program is proposing several changes in the B.S. degree requirements. They are summarized as follows:

1) ISE 220 – remove from curriculum
2) ISE 261G – add to curriculum
3) replace PHL 212 (ethics) with EGR 316G (engineering ethics)
4) Delete one "General Education" slot from Senior year, as newly required courses covering general education outcomes means less of these courses students will need to find on their own
5) replace MCE 263, CVE 220, and ELE 220 with a "technical elective" that allows students to choose two of the three courses that were previously all required
6) shift a professional elective from senior year, spring semester into spring of junior year so that students can be encouraged to enroll in electives that are only offered every other year
7) Change total credit count from 121-124 to 120
8) Renumber footnotes and add a footnote explaining the new technical elective

COLLEGE OF ENVIRONMENT AND LIFE SCIENCES:

Fisheries, Animal and Veterinary Science Department:

BS - Animal Science and Technology major: (see Appendix K)

We are not proposing a new program but rather are proposing to modify the options available to our students. Currently, this major has three options available to students: Pre-veterinary, Animal Science and Animal Management. One of the primary differences between our three curriculum options is the suite of basic science courses that are required, with the Pre-veterinary option being the most rigorous and Animal Management being the least rigorous.

The Pre-veterinary option has the least flexibility of the three options and this is necessary and dictated by the course prerequisites needed to apply to the various Colleges of Veterinary Medicine located domestically and abroad. In this proposal, although we have made a few minor adjustments to reflect the current course prerequisites for DVM programs, this option remains largely unchanged.

Option sheet update:

1. Replace STA 307 or 308 or 409 with STA 308. Veterinary colleges require an introductory statistics class and some of our students have run into conflicts with vet colleges admissions recognizing any other course than the one named Introductory Statistics.
2. Replace requirement for WRT 106 with WRT 104 or 106 and replace requirement for WRT 332 with WRT 332 or 334. Both of these changes will provide greater flexibility (see attached letter of support from Dr. Jeremiah Dyehouse, Dept Chair, Writing and Rhetoric).

Over the past year, the Animal and Veterinary Science faculty have been reviewing the two remaining options available to our majors: Animal Management and Animal Science with the goal of consolidating these two options into one Animal Science option in order to reduce redundancy between the options and provide greater coursework flexibility to students to enable them to tailor their training and coursework to their desired career path. Additionally, we have developed an extensive advising sheet with approved courses suggested for various focus areas.

BS - Aquaculture and Fisheries Sciences major: (see Appendix L)

Changes requested: Change the number of credits required to graduate from 130 to 120 (see below for a breakdown of credits required in each category).

Rationale:

The proposed program is a revision of the Aquaculture and Fisheries Science (previously known as Aquaculture and Fishery Technology, name change approved by CAC on 2/26/18) undergraduate major. This update to the program is needed to:

1) Provide a better fit with the current status and future directions of the field;
2) Accommodate for changes in personnel in FAVS due to retirements and new hires;
3) Better serve the demographics and needs of our students;
4) Accommodate for changes in the General Education program;
4) Facilitate a decrease in time to graduation by providing more flexibility in the curriculum while maintaining rigor; and
5) Facilitate students' ability to graduate with minors and double majors by better alignment with relevant programs.

The revised program:

a) Provides students with a strong foundation in the basic sciences and the specialized knowledge and skills needed to succeed in both professional and academic careers in Aquaculture and Fisheries. This includes an understanding of the importance of physical (geology, hydrology, oceanography), natural (from molecules to ecosystems), and social (cultural, economic, policy, diversity, equity) factors.
b) Illustrates the experiential learning focus of the program (see curriculum map highlighting all the courses that include laboratories, plus the requirement for at least 3 credits of internship or independent project).
c) Fulfills all the requirements needed for the Professional Certification by the American Fisheries Society (see supporting materials and https://fisheries.org/membership/afs-certification/)

d) Seamlessly integrates with a newly proposed Graduate Certificate in Aquaculture and Fisheries at the University of Rhode Island (proposal to be submitted soon).

Department of Environmental and Natural Resource Economics:
BS - Environmental and Natural Resource Economics major: (see Appendix M)
Change 1:

Currently, we have two degree options: Option 1, Green Markets and Sustainability (GMS, 87% of ENRE majors), and Option 2, Environmental Economics and Management (EEM, 13% of ENRE majors).

For Degree Option 1, Green Markets and Sustainability (GMS) we propose to:

1. Add a lower bound on the MTH requirement to make pre-calculus the minimum required (MTH 103 or 111 or BUS 111) and retain MTH 131 (Calc. I) as strongly recommended.
2. Add statistics as a formal requirement:
   STA 307, 308, 409 or BUS 210 required
3. Add EEC 440: Cost-Benefit Analysis as a required course in the core concentration.

For Degree Option 2, Environmental Economics and Management (EEM) we propose to:

1. Add intermediate micro (ECN 323 or ECN 328) as a core concentration requirement.
2. Add EEC 440: Cost-Benefit Analysis as a core concentration requirement.

Change 2:

The Department of Biological Sciences informed our Department Chair recently that BIO 105 will not be offered starting Fall 2018. We propose to remove the course from our degree option 1 (GMS) curriculum sheets.

Change 3:

The Department of Chemistry informed our Department Chair that CHM 100 would not be offered. We propose to remove the course from our degree option 1 (GMS) curriculum sheets.

Department of Natural Resources Science:
BS – Wildlife Conservation Biology: (see Appendix N)

1) Change: Correct a math calculation errors in the minimum number of concentration credits from 23 down to 22 credits, and alter language for the total number of credits needed in concentration and supporting electives.
   Rationale: A math error in prior catalogs (i.e., 2014-2016) inadvertently listed NRS 407 as a 4 credit course (it is a 3-credit course). Therefore we need to correct this error, as a student could potential take all needed concentration courses and accumulate only 22 credits. We suggest changing the wording in the catalog to state that a student must take "at least 22 credits" of concentration courses. We also suggest altering the wording for supporting electives to state that a student must take "at least 24 credits" of supporting electives. Thus, by default a student must take at least 46 credits of concentration and supporting electives with this change. These changes reflect similar language to the Environmental Science and Management major.
2) Change: Allow student to take either CHM 103/105 or CHM 101/102.
   Rationale: We want Wildlife and Conservation Biology majors to take CHM 103/105 and CHM 124/126. Some students, however take CHM 102/102 before meeting with an advisor or when transferring in. Because the CHM department allows students to take either CHM 103/105 or CHM 101/102 as a prerequisite for CHM 124/126, this change will satisfy the CHM department guidelines and match current guidelines for Environmental Science and Management majors. We propose to list this change in the catalog, but not on our checksheet in maximize the number of students taking CHM 103/105. This change will mean that a curriculum modification will not be necessary for students who take CHM 101/102.
3) Change: Delete the minimum grade requirement of C or better for NRS 223 to transfer from University College to CELS.
   Rationale: Although listed in the current catalog, this change was never approved by Faculty Senate, thus is an error. Also in addition, not all students have taken NRS 223 by the time they have completed 30 credits,

therefore this in an unnecessary roadblock to transfer from UC to CELS. The NRS faculty do feel it is important to retain a minimum grade for other introductory courses (i.e., intro BIOs and NRS 100).

COLLEGE OF HEALTH SCIENCES:

BS in Health Studies: (see Appendix O)
We would like to add additional classes to the specializations. Health studies majors select one of 3 specializations and take 6 classes within their selected specialization. The large number of majors is making it difficult for majors to sign up for the required number of classes. The proposed additional classes would serve Health Studies majors very well.

We proposed adding the following communication classes (per approval of Dr. McClure – see letter):

- COM 361: Intercultural Communication (to be added to the Health Promotion, and Global and Environmental Health list of approved specialization classes)
- COM 461: Managing Cultural Differences in Organizations (to be added to the Global and Environmental Health specialization list of approved specialization classes)
- COM 462: Communication and Global Society (to be added to Global and Environmental Health list of approved specialization classes)

COLLEGE OF PHARMACY:

Bachelors of Science in Pharmaceutical Sciences: (see Appendix P)
Update minimum criteria for acceptance into degree-granting college for BS Pharmaceutical Sciences degree. Catalog copy updates to the BS in Pharmaceutical Sciences section.

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Appendix B

Revised 8/2016

Notice of Change form

Notice of Change for: Creation of a Minor in Web Programming

Date: 07/01/2017

A. PROGRAM INFORMATION

1. Name of institution

University of Rhode Island

2. Name of department, division, school or college

Department: Computer Science and Statistics
College: Arts and Sciences

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

Initiation date: Fall 2018
First degree date: Spring 2019

4. Intended location of the program

Kingston Campus

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

Rationale:

This minor in Web Programming is a response to a strong need in the state and beyond for graduates with computing skills. Computer Science majors will fulfill many of those positions, but there is also a need for graduates in other majors to obtain specific programming skills to bring to their desired occupations. We have been working with CommerceRI to develop this minor to meet the specific needs of employers. And they have helped to recruit students in applicable majors to begin taking the courses required for this minor.

Course requirements:

20 credits: CSC 106 (4), CSC 201 (4), CSC 271 (4), CSC 372 (4), CSC 399 (4).

6. If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.

Portion of catalog description from Computer Science section is on the next page, with Track Changes on.

7. Signature of the President

_____

David M. Dooley

Catalog Language *(with Track Changes):* Insert after Minor in Cyber Security

Minor in Computer Science
Students declaring a minor in computer science must earn 24 credits including CSC 106 (4), 211 (4), 212 (4), 301 (4), and two other CSC courses at the 300-level or above (8). In addition, students are expected to complete MTH 131 (3) or MTH 141 (4).

Minor in Digital Forensics
Students declaring a minor in digital forensics must earn 19 credits by completing the following courses: CSC 201 (4) (non-Computer Science majors), CSF 102 (4), CSF 410 (4), 412 (4); Computer Science majors choose two more courses from the following, non-Computer Science majors choose one more course from the following: HPR 108 (3), CHM 392 (3), PSC 274/SOC 274 (3), PSC 388 (3), CSC 491 (1-3), CSC 499 (1-3), other faculty-approved courses.

Students intending to pursue a minor in Digital Forensics in addition to the minor in Cyber Security may take at most one course that will count towards both minors.

Minor in Cyber Security
Students declaring a minor in cyber security must complete 19-20 credits by completing the following courses: CSC 201 (4) (non-Computer Science majors), CSF 102 (4), CSF 430 (4), CSF 432 (4), CSF 434 (4). Computer Science majors choose one or more courses from: CSF 410 (4), 462 (4), CSC 417 (4), 418 (4), 499 (4) or other faculty approved courses.

Students intending to pursue a minor in Digital Forensics in addition to the minor in Cyber Security may take at most one course that will count towards both minors.

Minor in Web Programming
Students completing a Web Programming minor will be prepared to do front end and back end development of web-based applications using existing database architecture and product requirements. Students declaring a minor in Web Programming must earn 20 credits by completing the following courses: CSC 106 (4), CSC 201 (4), CSC 271 (4), CSC 372 (4), CSC 399 (4).

Students in any major (other than Computer Science) wishing to develop web programming skills are eligible for this minor.

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Appendix C

Revised 8/2016

Notice of Change form

Notice of Change for: Film/Media: FLM 214

Date:

A. PROGRAM INFORMATION

1. Name of institution
   University of Rhode Island

2. Name of department, division, school or college

   Department: Film/Media
   College: Arts & Sciences

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

   Initiation date: September, 2018
   First degree date: May, 2018

4. Intended location of the program
   Kingston

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

   FLM 214 is an elective critical studies course for the Film/Media major/minor, and a General Education course covering both Integrate & Apply and Write Effectively. This will be the first part of a two course sequence (with FLM 215, History of Television II), which can be taken on its own or as part of the sequence. This course will allow students to understand the history of television as it relates to American history, culture, politics, technology, business, and art, and to see, through the lens of television programming, how the medium has created and reflected individual and national identities, and shaped new ways to consider what television is, how it is made, who watches it, and how it is consumed.

FLM 220 will provide a much needed intermediary course in the Film/Media production curriculum between FLM 110: Introduction to Film/Media Technology and FLM 351: Topics in Film/Media Production. Currently, the step between FLM 110 and FLM 351 is too large, and students are often not prepared for 300-level production work. This course will provide flexibility through topics to keep up with both technology and equipment changes. Students will be able to augment and/or strengthen their capacities in film/media techniques, technology and software for specific use in film/media related projects and in preparation for work in the industry. FLM 220 will provide depth in students' knowledge-base of production aesthetics and techniques and will enhance their knowledge in preparation for more challenging production courses.

6. If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.

7. Signature of the President

Rebecca Romanow

Digitally signed by Rebecca Romanow
Date: 2018.03.16 15:14:27 -04'00'

David M. Dooley

Film/Media

Part of the Harrington School of Communication and Media (uri.edu/harrington), the Film/Media Program offers a Bachelor of Arts (B.A.) degree and a minor.

Faculty: Rebecca Romanow, Director. Professors Sama, Swift, Trimm, Walton, and Wood; Associate Professors Chadha, De Bruin, Echevarría, Healey- Jamiel, Mandel, Meagher, and Moore; Assistant Professors Kealhofer-Kemp and Wyatt; Adjunct Professor DeSchepper; Adjunct Assistant Professors Bergstrom, Neugent, Tierney and Zorabedian; Senior Lecturer Romanow; Lecturer Brown.

The Major. Film/Media is an interdisciplinary program offering hands-on experience in documentary, experimental, narrative, and new media production, balanced with an emphasis on international cinemas, film/media history, criticism, and theory. Our curriculum reflects the dynamic and diverse nature of this field, approached from a perspective of film history and media theory. Students learn to work with the evolving and overlapping technologies involved in the production of moving images (including film, digital video, 3D animation, game design, and new media), with an understanding of the broadening and globalization of their cultural and aesthetic contexts. A wide range of courses is available to the film/media student—courses that examine the historical, theoretical, and global approaches to the analysis and creation of moving images. The film/media program prepares students for careers in such areas as independent filmmaking; animation and media design; film and television industries; advertising, marketing, and public relations; and media criticism. Graduates of this program are also prepared to continue with graduate studies, either in film and media production for an M.F.A., or in a master's or doctoral program in film and media studies.

Students majoring in film/media must complete a minimum of 31 credits (maximum 46) in approved courses toward the major. FLM 101 or FLM 101H is a required prerequisite. All students must complete the core courses: FLM 110, FLM 203 (or ENG 302), FLM 204 (or FLM 205), including the senior-level seminar FLM 495; a minimum of 6 credits from the production and technique category and 6 credits from the critical studies category; a minimum of 3 elective credits in courses that count toward the film major (following). This wide range of choices in film/media courses permits students to design a major that will meet both personal and professional goals. Students must have a plan of study approved by an academic advisor in the film media program before beginning their coursework in the major.

Production & Technique: These courses focus on the different approaches to and practices of film/video production—how moving images are created, designed, and used to serve a variety of functions: ART 204, 215, 304, 306, 316; COM 341, 342, 445; FLM 110, 220, 351, 401, 445, 491A; JOR 221, 331.

Critical Studies: These courses emphasize the important traditions of genre and the literary and aesthetic approaches toward understanding and valuing film/media, and integrates them into their broad historical, cultural, and ideological contexts: AAF 352; ART 374, 376, 377; CLS 451; COM 346, 414; ENG 205 D, 245, 300A, 300B, 302, 303, 304, 305D, 352, 451; FLM 203, 204, 214, 205, 352, 444, 451, 491B, 495; FRN 320; GWS 350; HIS 358; HPR 324, 411; ITL 315; JOR 311; SPA 320; THE 182. FRN 320, ITL 315, and SPA 320 are taught in English. Other courses may be used for this category with prior approval of the program director. The following topics courses have been pre- approved: HPR 324 Images of Masculinity in Films, HPR 324 Rebel Images in Films, HPR 411 Film and Video Practicum, and GWS 350 Women and Film. Other film-based courses

may count toward the major or the minor with the permission of the film/media program director.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

Film/Media

Part of the Harrington School of Communication and Media (uri.edu/harrington), the Film/Media Program offers a Bachelor of Arts (B.A.) degree and a minor.

Faculty: Rebecca Romanow, D*irector*. Professors Sama, Swift, Trimm, Walton, and Wood; Associate Professors Chadha, De Bruin, Echevarría, Healey- Jamiel, Mandel, Meagher, and Moore; Assistant Professors Kealhofer-Kemp and Wyatt; Adjunct Professor DeSchepper; Adjunct Assistant Professors Bergstrom, Neugent, Tierney and Zorabedian; Senior Lecturer Romanow; Lecturer Brown.

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Students majoring in film/media must complete a minimum of 31 credits (maximum 46) in approved courses toward the major. FLM 101 or FLM 101H is a required prerequisite. All students must complete the core courses: FLM 110, FLM 203 (or ENG 302), FLM 204 (or FLM 205), including the senior-level seminar FLM 495; a minimum of 6 credits from the *production and technique* category and 6 credits from the *critical studies* category; a minimum of 3 elective credits in courses that count toward the film major (following). This wide range of choices in film/media courses permits students to design a major that will meet both personal and professional goals. Students must have a plan of study approved by an academic advisor in the film media program before beginning their coursework in the major.

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may count toward the major or the minor with the permission of the film/media program director.

A total of 120 credits is required for graduation. At least 42 of these must be in courses numbered 300 or above.

THE
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OF RHODE ISLAND

Appendix D

Revised 8/2016

Notice of Change form

Notice of Change for: Curriculum requirements for B.A. in Philosophy

Date: 1/22/18

A. PROGRAM INFORMATION

1. **Name of institution**
   University of Rhode Island

2. **Name of department, division, school or college**

   Department: Philosophy
   College: Art and Sciences

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

   Initiation date: Fall 2018
   First degree date: Spring 2022

4. **Intended location of the program**
   Kingston Campus

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

The Department of Philosophy offers a Bachelor of Arts degree. The degree requires 33-48 credits in the major. Among those credits, majors must take: a course in logic (PHL 101); a course (PHL 205) targeting philosophical skills (e.g., close reading, analysis of philosophical argumentation); a course in ethics (PHL 212 or 314); two history courses (Ancient Philosophy (PHL 321) and Modern Philosophy: Descartes to Kant (PHL 323); at least one course from PHL 341 (Introduction to Metaphysics), PHL 342 (Knowledge, Belief and Truth), and PHL 452 (Philosophy of Science); and one course from PHL 204 (Human Nature), PHL 318 (Power/Justice: Contemporary Critical Philosophies), PHL 324 (Recent European Philosophy) or PHL 346 (Existential Problems in Human Life). In addition to these requirements, majors must take a capstone course (PHL 490, Senior Seminar in Philosophy).

At a department meeting we decided to delete PHL 204 as an option from the PHL 204, 318, 324, 346 group. (It will still be offered as an elective.) The reasons for this are: 1. None of

our other groups from which a student must choose a course had more than 3 courses, so it is simpler and more consistent, 2. Removing 204 from this group might help boost enrollments in these other 300 level courses which we also deem more important within the major, and also, 3. We think there is some potential subject overlap between 204 and 346 and of the two, we think it better to have our majors take the more rigorous 346. PHL 204 would also be removed from the department's curriculum sheet and academic map.

6. **If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.**

(Current relevant catalog language below. Only change is deleting PHL 204 as indicated.)

"Students selecting the general option must complete no fewer than 33 credits (maximum 48) in philosophy. Students are required to take PHL 205; at least one from PHL 101, 451 (logic); at least one from PHL 212, 314 (ethics); at least one from PHL 341, 342, 452; both PHL 321 and 323; at least one from ~~PHL 204,~~ 318, 324, 346; and PHL 490 [capstone]. The remaining nine credits may be chosen freely from the list of PHL courses offered by the department. At least 18 credits in course work must be at the 300 level or above. For this degree, courses taken in RLS will be classified as electives or to fulfill a general education requirement."

7. **Signature of the President**

Rebecca Romanow

Digitally signed by Rebecca Romanow
Date: 2018.03.07 17:21:47 -05'00'

Nancy Eaton

Digitally signed by Nancy Eaton
DN: cn=Nancy Eaton, o, ou=College of Arts and Sciences, email=neaton@uri.edu, c=US
Date: 2018.03.07 17:28:38 -05'00'

David M. Dooley

Philosophy-BA **THE UNIVERSITY OF RHODE ISLAND** FALL 2017-SPRING 2018
120 Credits Total
33-48 Credits in Major

ABOUT THE PHILOSOPHY DEGREE:

The BA program in philosophy is concerned with teaching students the methodology of clear and logical thinking. In addition, it deals with ultimate questions of human existence, such as the nature of morality, the purpose of human life, the problem of evil, and other similar problems. By taking various courses in systematic philosophy and the history of philosophy, students will encounter various options on how these questions have been answered and are invited to do their own critical thinking about them.

STEP 1:

Major Requirements:

Course	Semester	Credits	Grade
PHL 101*		3	
PHL 205		3	
PHL 212* or 314		3	
PHL 321		3	
PHL 323		3	
PHL 341, 342, or 452		3	
PHL ~~204~~, 318, 324, or 346		3	
PHL 490		3	
PHL ____		3	
PHL ____		3	
PHL ____		3	
Optional Major Electives (do not exceed 48 PHL credits)			

At least eighteen (18) PHL credits must be at the 300-level or higher.

Students pursuing or considering pursuing a major or a minor in Philosophy are strongly urged to complete PHL 205 as soon as possible.

42 credits at the 300-level or higher

(major and general education courses may fulfill this requirement)

Course	Credits	Course	Credits

Free elective credits

(to meet the 120 credits required for graduation):

Course	Credits	Course	Credits

*Course approved for general education credit

Please note: Both major and cumulative GPA must be 2.00 or higher in order to graduate.

Philosophy-BA
120 Credits Total
33-48 Credits in Major

THE UNIVERSITY OF RHODE ISLAND

FALL 2017-SPRING 2018

GENERAL EDUCATION GUIDELINES: General education is 40 credits. Each of the twelve outcomes (A1-D1) must be met by at least 3 credits. A single course may meet more than one outcome, but cannot be double counted towards the 40 credit total. At least one course must be a Grand Challenge (G). No more than twelve credits can have the same course code (note- HPR courses may have more than 12 credits). General education courses may also be used to meet requirements of the major or minor when appropriate.

STEP 2:

General Education Credit Count				
At least 40 credits, no more than 12 credits with the same course code.				
Course	**Cr.**		**Course**	**Cr.**
			Total Gen Ed credits	40

STEP 3:

General Education Outcome Audit	
	Course
KNOWLEDGE	
A1. STEM	
A2. Social & Behavioral Sciences	
A3. Humanities	
A4. Arts & Design	
COMPETENCIES	
B1. Write effectively	
B2. Communicate effectively	
B3. Mathematical, statistical, or computational strategies	
B4. Information literacy	
RESPONSIBILITIES	
C1. Civic knowledge & responsibilities	
C2. Global responsibilities	
C3. Diversity and Inclusion	
INTEGRATE & APPLY	
D1. Ability to synthesize	
GRAND CHALLENGE	
G. Check that at least one course of your 40 credits is an approved "G" course	

SEE OPPOSITE SIDE FOR PROGRAM REQUIREMENTS.

NOTE: This worksheet sheet is a snapshot of your entire curriculum. You must work with your advisor each term to discuss requirements to keep you on course for timely progress to complete this major. Official requirements for graduation are listed in the University Catalog.

Please note: Both major and cumulative GPA must be 2.00 or higher in order to graduate.

THE UNIVERSITY OF RHODE ISLAND

PHILOSOPHY ACADEMIC MAP

College of Arts and Sciences

Major Code: AS_PHIL_BA
Total Credits: 120
Catalog Year 2014-2015

The Bachelors degree in philosophy is concerned with teaching students the methodology of clear and logical thinking. In addition, it deals with ultimate questions of human existence, such as the nature of morality, the purpose of human life, the place of humans in the universe, the problem of evil, the nature of scientific theorizing, and other, similar problems. By taking various courses in systematic philosophy and in the history of philosophy, students will encounter various options on how these questions have been answered, and are invited to do their own critical thinking about them. See http://www.uri.edu/artsci/phl/ for more information.

SEMESTER 1	CREDITS
PHL 101 (COM Gen Ed)	3
Gen Ed	3
Gen Ed	3
Gen Ed	3
Gen Ed	3
URI 101	1
TOTAL CREDITS	16

SEMESTER 1 MILESTONES
Overall GPA 2.00
Complete URI 101
Meet with advisor for credit check

SEMESTER 2	CREDITS
Gen Ed	3
Gen Ed	3
Gen Ed	3
Gen Ed	3-4
Elective	3
TOTAL CREDITS	15-16

SEMESTER 2 MILESTONES
Overall GPA 2.00
Meet with advisor
Complete MTH course
Complete WRT course
Complete 30 credits (or consider summer/J-term courses)

SEMESTER 3	CREDITS
Gen Ed	3
Gen Ed	3
Gen Ed	3-4
PHL elective (any PHL course)	3
Elective	3
TOTAL CREDITS	15-16

SEMESTER 3 MILESTONES
Overall GPA 2.00
Move from UC to College of Arts & Sciences (Complete 24 credits and overall GPA 2.00)

SEMESTER 4	CREDITS
Gen Ed	3
PHL 205	3
PHL 212 or 314	3
Elective	3
Elective	3
TOTAL CREDITS	15

SEMESTER 4 MILESTONES
Overall GPA 2.00
Complete PHL 205
Consider minor area of study
Consider second major
Consider study abroad
Complete 60 credits (or consider summer/J-term courses)

SEMESTER 5	CREDITS
PHL ~~204~~, 318, 324 or 346	3
PHL 321	3
Upper-level elective (300-400 level)	3
Elective	3
Elective	3
TOTAL CREDITS	15

SEMESTER 5 MILESTONES
Overall GPA 2.00
Declare and complete form for minor area of study (optional)
Declare second major (optional)
Meet with Internship advisor

THE UNIVERSITY OF RHODE ISLAND

PHILOSOPHY ACADEMIC MAP

College of Arts and Sciences

Major Code: AS_PHIL_BA
Total Credits: 120
Catalog Year 2014-2015

SEMESTER 6	CREDITS
PHL 323	3
PHL elective (any PHL course)	3
Upper-level elective (300-400 level)	3
Upper-level elective (300-400 level)	3
Elective	3
TOTAL CREDITS	15

SEMESTER 6 MILESTONES
Overall GPA 2.00
Meet with advisor for 300-level or above credit check (42 credits required)
Complete 90 credits (or consider summer/J-term courses)

SEMESTER 7	CREDITS
PHL elective (any PHL course)	3
PHL 341, 342 or 452	3
Upper-level elective (300-400 level)	3
Upper-level elective (300-400 level)	3
Elective	3
TOTAL CREDITS	15

SEMESTER 7 MILESTONES
Overall GPA 2.00
Meet with advisor to complete intent to graduate form by Oct. 1
Complete MTH 462

SEMESTER 8	CREDITS
PHL 490	3
Upper-level elective (300-400 level)	3
Upper-level elective (300-400 level)	3
Upper-level elective (300-400 level)	3
Elective	3
TOTAL CREDITS	15

SEMESTER 8 MILESTONES
Overall GPA 2.00
Complete 42 credits at the 300-level or above
Complete 120 credits

General Education Checklist	Gen Ed Requirements	
English Communication (EC)	_____	_____
Math (MQ)	_____	
Natural Science (NS)[1]	_____	_____
Social Science (S)[1]	_____	_____
Letters (L)[1]	_____	_____
Fine Arts/Literature (A)	_____	_____
Foreign Language (F)	_____	_____

[1] Courses must come from different course codes for general education categories for Letters, Natural Sciences, and Social Sciences.

Upper level (300+) A&S graduation requirement. YOU NEED AT LEAST 42 CREDITS AT 300+ LEVEL ACROSS ALL COURSE CODES, INCLUDING PHL.

NOTE: This map is a semester-by-semester course schedule for your major, and is a guideline to help you build a full schedule each term. Milestones shown for each semester indicate requirements to keep you on course for timely progress to complete this major and graduate in four years. Official requirements for graduation are listed in the University Catalog.

THE
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Appendix G

Revised 8/2016

NOTICE OF CHANGE FORM

Notice of Change for: Chemical Engineering Curriculum

Date: February 27, 2018

A. PROGRAM INFORMATION

1. **Name of institution**
   University of Rhode Island

2. **Name of department, division, school or college**

   Department: Chemical Engineering
   College: Engineering

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

   Initiation date: Fall 2018
   First degree date: Spring 2019

4. **Intended location of the program**

   Kingston, Rhode Island (Main Campus)

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

   - Add NUE 391 and 392 as professional elective options for all Chemical Engineering Tracks.
   - Maximum of 6 credits in CHE 491 and 492 can be used to satisfy "professional elective requirements"
   - In Traditional Track, create a **science elective** option to replace the professional elective option as an automatic substitution for CHM 432. The science elective course options are CMB 311, 352, 421, 464; BIO 341; CHM 427, 521; PHY 430.
   - In Pharmaceutical track, Replace BPS 303 and 305 (total of 4 credits) with BPS 315 (4 credits) (pending approval of BPS 315 as a new course).

6. **If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.**

   (see attached addendum)

7. **Signature of the President**

David M. Dooley

The Department of Chemical Engineering (CHE) offers a curriculum leading to the Bachelor of Science (B.S.) degree in chemical engineering. The chemical engineering program is accredited by the Engineering Accreditation Commission (EAC) of ABET, Inc. (www.abet.org). In addition to the major there are two available tracks: biology and pharmaceutical. The department also offers the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees.
Faculty: Professor Bothun, C*hairperson.* Professors Bose, Brown, Gregory, and Lucia; Associate Professors Greenfield and Rivero-Hudec; Assistant Professors Kennedy, Meenach, and Roxbury; Associate Research Professor Crisman; Professors Emeriti Barnett, Gray, Knickle, Rockett, and Rose.

The chemical engineer is concerned with the application and control of processes leading to changes in chemical composition. These processes are most frequently associated with the production of useful products (chemicals, fuels, metals, foods, pharmaceuticals, paper, plastics, and the like), but also include processes such as removal of toxic components from the blood by an artificial kidney, environmental cleanup, and semiconductor processing. The chemical engineer's domain includes more efficient production and use of energy, processing of wastes, and protection of the environment.

Chemical engineers have a strong foundation in chemistry, physics, mathematics, and basic engineering. Chemical engineering courses include thermodynamics, transport phenomena, mass transfer operations, materials engineering, process dynamics and control, kinetics, and plant design. The student has the opportunity to operate small-scale equipment and to visit local industry. Intensive work is undertaken in the solution of complex problems in which economics and optimization of engineering design are emphasized.

Department Mission Statement. We are a community in a common quest to create and distribute chemical engineering knowledge in order to prepare our graduates to be successful leaders and practitioners.
Program Educational Objectives.
Three to five years after graduation from the B.S. in chemical engineering, graduates will :

1. Practice or apply the principles of chemical engineering in a variety of employment areas.

2. Achieve professional success with an understanding and appreciation of ethical behavior, social responsibility, and diversity, both as individuals and in team environments.

3. Be capable of pursuing continued life-long learning through professional practice, further graduate education or other training programs in engineering science or other professional fields.

Student Outcomes. Chemical engineering students demonstrate knowledge in all outcomes required by ABET, Inc. which are listed in the college's student outcomes section of this catalog.
Program Description. URI's chemical engineering program is more than just a collection of courses and credit hours whose content reflects the required criteria. The program has also been carefully designed to prepare students for the profession of chemical engineering through study, experience, and practice. Through eight specific program goals, the department of chemical engineering at URI seeks to:
1) provide the necessary background in science, particularly chemistry, physics, and advanced mathematics through the study of differential equations, so that students will be able to continue their education in the engineering sciences, with depth of understanding, and learn to apply these subjects to the formulation and solution of engineering problems;

2) provide a broad cross section of fundamental engineering science courses, including some from other engineering disciplines so that our students will acquire an understanding of the way in which chemistry, physics, and mathematics have been and continue to be used to solve important engineering problems relevant to the general chemical engineering and engineering design;

3) provide students with experience in conducting and planning experiments in the modern engineering laboratory, including interfacing experiments with computers as well as interpreting the significance of resulting data and properly reporting results in well-written technical reports;

4) provide experience in the process of original chemical engineering design in the areas of equipment design, process design, and plant design through the process of formulating a design solution to a perceived need and then executing the design and evaluating its performance, including economic considerations and societal impacts if any, along with other related constraints, culminating in both written and oral presentations of results;

5) provide experience with the multifaceted aspects of using computers to solve problems and present results with word processing, spreadsheet, presentation, and professional-level applications software used for design and analysis; and provide for obtaining and using information on the World Wide Web;

6) provide a familiarity with professional issues in chemical engineering, including ethics, issues related to the global economy and to emerging technologies, and fostering of important job-related skills such as improved oral and written communications and experience in working in teams at a number of levels;

7) encourage students to become actively engaged in the student chapter of the American Institute of Chemical Engineers and other student organizations, and to continue these associations after graduation with an emphasis on the importance of lifelong professional development including the desirability of attending graduate school or otherwise obtaining continuing or advanced education; and

8) make available continuous individual advising throughout the entire undergraduate educational experience to insure that each student makes the most of the educational opportunities provided by URI, particularly those related to general education electives that might enhance an engineering education, and special programs such as internships, cooperative experience and especially the International Engineering Programs in Chinese, German, French, and Spanish which are a unique opportunity available to globally motivated URI engineering students.

Traditional Chemical Engineering Major.
The chemical engineering major requires 121 credits.
Freshman Year First semester: 13 credits
CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); and PHY 203 (3), 273 (1).
Second semester: 17 credits
CHM 112 (3), 114 (1); ECN 201 (3); EGR 106 (2); MTH 142 (4); and PHY 204 (3), 274 (1).
Sophomore Year First semester: 12 credits
CHE 212 (3); CHM 227 (3); MTH 243 (3); and general education outcome(s)[4~~3~~] (3).
Second semester: 15 credits
CHE 232 (3), 272 (3), 313 (3)**;** CHM 228 **or** BCH 311 (3); and MTH 244 (3).
Junior Year First semester: 17 credits
CHE 314 (3), 347 (3); CHM 335 (2), 431 (3); approved mathematics elective[1] (3); and general education outcome(s)[4~~3~~] (3).
Second semester: 15 credits
CHE 348 (3), 364 (3); CHM 432 **or** approved science~~professional~~ elective[1] (3); and general education outcome(s)[4~~3~~] (6).
Senior Year First semester: 18 credits
CHE 345 (2) **[capstone]**, 449 (3), 451 (3) **[capstone]**, 425 (3), 428 (1); approved professional elective[2] (3); and general education outcome(s)[4~~3~~] (3).
Second semester: 14 credits
CHE 346 (2) **[capstone]**, 452 (3) **[capstone]**; and approved professional electives[2] (9).
1*Mathematics Elective Requirement:* MTH 215 **or** any 300-, 400-, or 500-level MTH course ***except*** MTH 381.
[2]*Professional Elective Requirements:* half of the professional electives are to be 400-level or higher CHE courses taken at URI. A maximum of 6 credits in CHE 491 and 492 may be applied. In addition EGR 325, ~~and~~ EGR 326, NUE 391, and NUE 392 are permissible approved professional electives. The remaining courses are to be 300-level or higher in natural science, 400-level or higher in engineering (BME, CHE,

CVE, ELE, ISE, MCE, OCE), or 400-level or higher in MTH. ***All professional electives require prior approval by CHE advisor.***

[3] Or approved *Science Elective Requirement*: CMB 311, 352, 421, 464; BIO 341; CHM 427, 521; or PHY 430.

[4~~3~~]*General Education Outcomes (A1-D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to fill each remaining space in order to meet the required earned credit total of your degree plan. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.*

Biology Track in Chemical Engineering. The primary motivation is to respond to advances in our understanding of biological processes at the molecular and macroscopic levels, and the unique opportunity for chemical engineers to translate that understanding to useful processes. The application of the chemical engineering paradigm to biology enables graduates to develop new molecular biology tools; drug delivery systems; artificial skin, organs and tissues; sensors and alternative fuels; and to integrate new bio-products into existing materials. The curriculum is founded on the core principles of transport phenomena, unit operations, thermodynamics, and reaction kinetics. Students take a series of five courses in biochemistry and cell and molecular biology. Besides preparing students for the biotechnology industry, this combination of biology, chemical engineering, and chemistry courses is relevant to those considering medical school.
This track follows a program similar to the traditional chemical engineering curriculum, but with biology and biochemistry courses replacing some of the other technical and science courses.

The chemical engineering major with biology track requires 124-126 credits.
Freshman Year First semester: 13 credits
CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); and PHY 203 (3), 273 (1).
Second semester: 17 credits
BIO 101 (3), BIO 103 (1); CHM 112 (3), 114 (1); ECN 201 (3); EGR 106 (2); and MTH 142 (4).
Sophomore Year First semester: 15 credits
CHE 212 (3), CHM 227 (3); MTH 243 (3); and general education outcome(s)[4] (6).
Second semester: 15 credits
BCH 311 (3) **or** BIO 341 (3); CHE 232 (3), 272 (3), 313 (3); and MTH 244 (3).
Junior Year First semester: 16 credits
BIO 341 (3) **or** BCH 311 (3); CHE 314 (3), 347 (3); PHY 204 (3), 274 (1); and general education outcome(s)[4] (3).
Second semester: 16-17 credits
CHE 348 (3), 364 (3); MIC 211 (4); approved track elective (3-4)[3]; and general education outcome(s)[4] (3).
Senior Year First semester: 18 credits
CHE 345 (2) **[capstone]**, 425 (3), 428 (1), 449 (3)~~, 451~~, 451 (3) **[capstone]**; approved professional elective[2] (3); and general education outcome(s)[4] (3).
Second semester: 14-15 credits
CHE 346 (2) **[capstone]**, 452 (3) **[capstone]**; approved mathematics elective[1] (3); approved professional elective[2] (3); and approved track elective[3] (3-4).
[1] *Mathematics Elective Requirement:* MTH 215 **or** any 300-, 400-, or 500-level MTH course ***except*** MTH 381.
[2] *Professional Elective Requirements:* half of the professional electives are to be any 400-level or higher CHE courses taken at URI. A maximum of 6 credits in CHE 491 and 492 may be applied. In addition EGR 325, ~~and~~ EGR 326, NUE 391, and NUE 392 are permissible approved professional electives. The remaining courses are to be 300-level or higher in natural science, 400-level or higher in engineering (BME, CHE, CVE, ELE, ISE, MCE, OCE), or 400-level or higher in MTH. ***All professional electives require prior approval by CHE advisor.***
[3]*Track Electives: CHE 466, 548, 550, 574; BPS 503, 542; BIO 352, 437, PHY 545.* ***All Track Electives require advisor approval.***
[4]*General Education Outcomes (A1-D1):* if all outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to fill each remaining space in order to meet the required earned credit total of your degree plan. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.
Pharmaceutical Track in Chemical Engineering. Biopharmaceuticals is one of the fastest growing industrial sectors both in the United States and worldwide, with a projected growth rate of ten percent

per year for the foreseeable future. Driving this rapid growth are the worldwide increase in average life span, major developments in our understanding of key factors behind the development of disease, and important innovations in drug formulations and delivery. This growth has created a need for graduates who are well-versed in the basic sciences as well as all technological aspects related to the development process for therapeutic agents—production, scale-up and processing, formulation and delivery, and regulatory constraints. The chemical engineering pharmaceutical track serves to meet this need, combining the well-known strengths of the College of Pharmacy with those of the department of chemical engineering, for a curriculum that will produce leaders in the pharmaceutical industry. This track follows the traditional chemical engineering curriculum, but with biology, biochemistry, and biomedical-and-pharmaceutical-science courses replacing some of the other technical and science courses.

The chemical engineering major with pharmaceutical track requires 127-128 credits.
Freshman Year First Semester: 13 credits
CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); and PHY 203 (3), 273 (1).
Second Semester: 17 credits
BIO 101 (3), BIO 103 (1); CHM 112 (3), 114 (1); ECN 201 (3); EGR 106 (2); and MTH 142 (4).
Sophomore Year First Semester: 15 credits
CHE 212 (3); CHM 227 (3); MTH 243 (3); and general education outcome(s)[3] (6).
Second Semester: 15 credits
BCH 311 (3) **or** BIO 341 (3); CHE 232 (3), 272 (3), 313 (3); and MTH 244 (3).
Junior Year First Semester: 15 credits
BCH 311 (3) **or** BIO 341 (3); BPS 301 (2), 315 (4)~~03 (2), 305 (2)~~; and CHE 314 (3), 347 (3).
Junior Year Second Semester: 17 credits
BPS 425 (3); CHE 348 (3), 364 (3); MIC 211 (4); and PHY 204 (3), 274 (1).
Senior Year First Semester: 18 credits
CHE 345 (2) **[capstone]**, 425 (3), 428 (1), 449 (3), 451 (3) **[capstone];** approved professional elective[1] (3); and general education outcome(s)[3] (3).
Senior Year Second Semester: 17-18 credits
CHE 346 (2) **[capstone]**, 452 (3) **[capstone];** approved professional elective[1] (3); approved track elective[2] (3-4); and general education outcome(s)[3] (6).
1*Professional Elective Requirements:* half of the professional electives are to be 400-level or higher CHE courses taken at URI. A maximum of 6 credits in CHE 491 and 492 may be applied. In addition EGR 325, ~~and~~ EGR 326, NUE 391, and NUE 392 are permissible approved professional electives. The remaining courses are to be 300-level or higher in natural science, 400-level or higher in engineering (BME, CHE, CVE, ELE, ISE, MCE, OCE), or 400-level or higher in MTH. ***All professional electives require prior approval by CHE advisor.***
[2]Track Elective: CHE 466, 548, 550, 574; BPS 503, 542; PHY 430, 545. **Track Elective requires advisor approval.**
3*General Education Outcomes (A1-D1):* if all outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to fill each remaining space in order to meet the required earned credit total of your degree plan. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.
International Engineering Program (IEP). In conjunction with the College of Arts and Sciences, the COE offers a five-year program in which students earn two degrees: a Bachelor of Science (B.S.) in engineering and a Bachelor of Arts (B.A.) in a foreign language. The foreign languages currently offered by the IEP are Chinese, German, French, Italian, and Spanish. The five-year program includes a year studying abroad. The first semester abroad is spent at the IEP's partner university taking engineering, language, and culture courses in the host language. The second six months abroad are spent in a paid professional internship working at an international engineering company or engaged in a research institute in Europe, Latin America, the Caribbean, or Asia. Upon graduation, students are well prepared to compete in the global marketplace and are highly sought after by employers both in the U.S. and abroad. Interested students should contact the IEP director at the Texas Instruments (TI) House on Upper College Road. The IEP has received several awards for excellence in international engineering education.
Minor in Nuclear Engineering. Qualified chemical engineering students may pursue a minor in nuclear engineering. Requirements for the minor can be found in the college's minors section. Additional information can be found at egr.uri.edu/nuclear-engineering-minor/

Accelerated Five-Year B.S./M.S. Degree Program. To qualify for this program, students must earn a cumulative GPA of 3.00 or higher while pursuing their B.S. degree. To ease the course load at the graduate level, candidates are encouraged to earn some graduate credits (e.g. one or two courses not required for their B.S. degree) during their senior year. Additional information can be obtained by contacting the department chairperson.

CHEMICAL ENGINEERING - Class of 2022 (DRAFT)

Total Credits = 121

Freshman Year *Fall* Semester

Course Code	Description	Cr	
CHM 101	General Chemistry Lec I (A1)	3	
CHM 102	General Chemistry I Lab	1	
EGR 105	Foundations of Engineering I (A4)	1	
MTH 141 +	Calculus I (A1, B3)	4	
PHY 203	Elementary Physics I (A1)	3	
PHY 273	Elementary Physics Lab I (A1)	1	
		13	

Freshman Year *Spring* Semester

Course Code	Description	Cr	
CHM 112 +	General Chemistry II Lec	3	
CHM 114	General Chemistry II Lab	1	
ECN 201	Principles of Microeconomics (A2)	3	
EGR 106	Foundations of Engineering II (A4)	2	
MTH 142 +	Calculus II (B3)	4	
PHY 204	Elementary Physics II (A1)	3	
PHY 274	Elementary Physics Lab II (A1)	1	
		17	

Sophomore Year *Fall* Semester

Course Code	Description	Cr	
CHE 212	Chemical Process Calculations	3	
CHM 227 +	Organic Chemistry Lec I	3	
MTH 243 +	Calculus for Functions of Several Vars (A1, B3)	3	
	General Education Outcome(s)*	3	
		12	

Sophomore Year *Spring* Semester

Course Code	Description	Cr	
CHE 232	Materials Science and Engineering	3	
CHE 272	Intro to Chemical Engineering Calculations	3	
CHE 313	Chemical Engineering Thermodynamics I	3	
CHM 228 + ***or*** CMB 311	Organic Chemistry Lec II **or** Introductory Biochemistry	3	
MTH 244	Differential Equations	3	
		15	

Admission to the COE required for enrollment in "300" level and higher COE courses. Admission requires at least a 2.0 cumulative GPA and a C- or higher in each of the following; EGR 105 & 106, CHM 101/102, MTH 141 & 142, PHY 203/273, and either PHY 204/274 *or* CHM 112/114

Junior Year *Fall* Semester

Course Code	Description	Cr	
CHE 314	Chemical Engineering Thermodynamics II	3	
CHE 347	Transfer Operations I	3	
CHM 335	Physical Chemistry Lab	2	
CHM 431 +	Physical Chemistry I	3	
	Approved Mathematics Elective**	3	
	General Education Outcome(s)*	3	
		17	

Junior Year *Spring* Semester

Course Code	Description	Cr	
CHE 348	Transfer Operations II	3	
CHE 364	Chemical Kinetics and Reactor Design	3	
CHM 432 +	Physical Chemistry II***	3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
		15	

Senior Year *Fall* Semester

Course Code	Description	Cr	
CHE 345	Chemical Engineering Lab I	2	
CHE 425	Process Dynamics and Control	3	
CHE 428	Professional Experience	1	
CHE 449	Transfer Operations III	3	
CHE 451	Plant Design and Economics I	3	
	Approved Professional Elective****	3	
	General Education Outcome(s)*	3	
		18	

Senior Year *Spring* Semester

Course Code	Description	Cr	
CHE 346	Chemical Engineering Lab II	2	
CHE 452	Plant Design and Economics II (D1, C2)	3	
	Approved Professional Elective****	3	
	Approved Professional Elective****	3	
	Approved Professional Elective****	3	
		14	

* **General Education Outcomes:** if all Outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to fill each remaining space in order to meet the required earned credit total of your degree plan.
See the "General Education Outcomes" section at the bottom of page two for more information on satisfying these requirements.

** **Mathematics Elective:** MTH 215 or any 300-, 400-, or 500-level MTH course ***except*** MTH 381.

*** Or approved **Science Elective:** BIO 341; CHM 427, 521; CMB 311, 352, 421, 464; PHY 430

**** **Professional Electives:** Half of the Professional Electives are to be 400-level or higher CHE courses taken at URI. A maximum of 6 credits in CHE 491 and 492 may be applied. In addition EGR 325, EGR 326, NUE 391, and NUE 392 are permissible approved professional electives. The remaining courses are to be 300-level or higher in natural sciences, 400-level or higher in engineering (BME, CHE, CVE, ELE, ISE, MCE, OCE), or 400-level or higher in MTH. ***All professional electives require prior approval by CHE advisor.***

\+ Course prerequisites include grade requirements in previous coursework, see catalog or eCampus course description for details

CHEMICAL ENGINEERING - BIOLOGY TRACK - Class of 2022 (DRAFT)

Total Credits = 124-126

Freshman Year *Fall* Semester

Course Code	Description	Cr	
CHM 101	General Chemistry Lec I (A1)	3	
CHM 102	General Chemistry I Lab	1	
EGR 105	Foundations of Engineering I (A4)	1	
MTH 141 +	Calculus I (A1, B3)	4	
PHY 203	Elementary Physics I (A1)	3	
PHY 273	Elementary Physics Lab I (A1)	1	
		13	

Freshman Year *Spring* Semester

Course Code	Description	Cr	
BIO 101	Principles of Biology I (A1)	3	
BIO 103	Principles of Biology I Lab (A1)	1	
CHM 112 +	General Chemistry II Lec	3	
CHM 114	General Chemistry II Lab	1	
ECN 201	Principles of Microeconomics (A2)	3	
EGR 106	Foundations of Engineering II (A4)	2	
MTH 142 +	Calculus II (B3)	4	
		17	

Sophomore Year *Fall* Semester

Course Code	Description	Cr	
CHE 212	Chemical Process Calculations	3	
CHM 227 +	Organic Chemistry Lec I	3	
MTH 243 +	Calculus for Functions of Several Vars (A1, B3)	3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
		15	

Sophomore Year *Spring* Semester

Course Code	Description	Cr	
BIO 341 ***or*** CMB 311	Cell Biology ***or*** Intro Biochemistry	3	
CHE 232	Materials Science and Engineering	3	
CHE 272	Intro to Chemical Engineering Calculations	3	
CHE 313	Chemical Engineering Thermodynamics I	3	
MTH 244	Differential Equations	3	
		15	

Admission to the COE required for enrollment in "300" level and higher COE courses. Admission requires at least a 2.0 cumulative GPA and a C- or higher in each of the following; EGR 105 & 106, CHM 101/102, MTH 141 & 142, PHY 203/273, and either PHY 204/274 *or* CHM 112/114

Junior Year *Fall* Semester

Course Code	Description	Cr	
BIO 341 ***or*** CMB 311	Cell Biology ***or*** Intro Biochemistry	3	
CHE 314	Chemical Engineering Thermodynamics II	3	
CHE 347	Transfer Operations I	3	
PHY 204	Elementary Physics II (A1)	3	
PHY 274	Elementary Physics Lab II (A1)	1	
	General Education Outcome(s)*	3	
		16	

Junior Year *Spring* Semester

Course Code	Description	Cr	
CHE 348	Transfer Operations II	3	
CHE 364	Chemical Kinetics and Reactor Design	3	
CMB 211	Intro Microbiology	4	
	Approved Track Elective**	3-4	
	General Education Outcome(s)*	3	
		16-17	

Senior Year *Fall* Semester

Course Code	Description	Cr	
CHE 345	Chemical Engineering Lab I	2	
CHE 449	Transfer Operations III	3	
CHE 425	Process Dynamics and Control	3	
CHE 428	Professional Experience	1	
CHE 451	Plant Design and Economics I	3	
	Approved Professional Elective***	3	
	General Education Outcome(s)*	3	
		18	

Senior Year *Spring* Semester

Course Code	Description	Cr	
CHE 346	Chemical Engineering Lab II	2	
CHE 452	Plant Design and Economics II (D1, C2)	3	
	Approved Mathematics Elective****	3	
	Approved Professional Elective***	3	
	Approved Track Elective**	3-4	
		14-15	

* **General Education Outcomes:** if all Outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to fill each remaining space in order to meet the required earned credit total of your degree plan.
See the "General Education Outcomes" section at the bottom of page two for more information on satisfying these requirements.

** **Track Electives:** CHE 466, 548, 550, 574; BPS 503, 542; BIO 352, 437; PHY 545.
All track electives require prior approval by CHE advisor.

*** **Professional Electives:** Half of the Professional Electives are to be 400-level or higher CHE courses taken at URI. A maximum of 6 credits in CHE 491 and 492 may be applied. In addition EGR 325, EGR 326, NUE 391, and NUE 392 are permissible approved professional electives. The remaining courses are to be 300-level or higher in natural sciences, 400-level or higher in engineering (BME, CHE, CVE,

CHEMICAL ENGINEERING - PHARM TRACK - Class of 2022 (DRAFT)

Total Credits = 127-128

Freshman Year *Fall* Semester

Course Code	Description	Cr	
CHM 101	General Chemistry Lec I (A1)	3	
CHM 102	General Chemistry I Lab	1	
EGR 105	Foundations of Engineering I (A4)	1	
MTH 141 +	Calculus I (A1, B3)	4	
PHY 203	Elementary Physics I (A1)	3	
PHY 273	Elementary Physics Lab I (A1)	1	
		13	

Freshman Year *Spring* Semester

Course Code	Description	Cr	
BIO 101	Principles of Biology I (A1)	3	
BIO 103	Principles of Biology I Lab (A1)	1	
CHM 112 +	General Chemistry II Lec	3	
CHM 114	General Chemistry II Lab	1	
ECN 201	Principles of Microeconomics (A2)	3	
EGR 106	Foundations of Engineering II (A4)	2	
MTH 142 +	Calculus II (B3)	4	
		17	

Sophomore Year *Fall* Semester

Course Code	Description	Cr	
CHE 212	Chemical Process Calculations	3	
CHM 227 +	Organic Chemistry Lec I	3	
MTH 243 +	Calculus for Functions of Several Vars (A1, B3)	3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
		15	

Sophomore Year *Spring* Semester

Course Code	Description	Cr	
BIO 341 ***or*** CMB 311	Cell Biology ***or*** Intro Biochemistry	3	
CHE 232	Materials Science and Engineering	3	
CHE 272	Intro to Chemical Engineering Calculations	3	
CHE 313	Chemical Engineering Thermodynamics I	3	
MTH 244	Differential Equations	3	
		15	

Admission to the COE required for enrollment in "300" level and higher COE courses. Admission requires at least a 2.0 cumulative GPA and a C- or higher in each of the following; EGR 105 & 106, CHM 101/102, MTH 141 & 142, PHY 203/273, and either PHY 204/274 *or* CHM 112/114

Junior Year *Fall* Semester

Course Code	Description	Cr	
BIO 341 ***or*** CMB 311	Cell Biology ***or*** Intro Biochemistry	3	
BPS 301	Dosage Forms I	2	
BPS 315	Pharmaceutics II	4	
CHE 314	Chemical Engineering Thermodynamics II	3	
CHE 347	Transfer Operations I	3	
		15	

Junior Year *Spring* Semester

Course Code	Description	Cr	
BPS 425	Current Good Manufacturing Processes	3	
CHE 348	Transfer Operations II	3	
CHE 364	Chemical Kinetics and Reactor Design	3	
CMB 211	Intro Microbiology	4	
PHY 204	Elementary Physics II (A1)	3	
PHY 274	Elementary Physics Lab II (A1)	1	
		17	

Senior Year *Fall* Semester

Course Code	Description	Cr	
CHE 345	Chemical Engineering Lab I	2	
CHE 425	Process Dynamics and Control	3	
CHE 428	Professional Experience	1	
CHE 449	Transfer Operations III	3	
CHE 451	Plant Design and Economics I	3	
	Approved Professional Elective**	3	
	General Education Outcome(s)*	3	
		18	

Senior Year *Spring* Semester

Course Code	Description	Cr	
CHE 346	Chemical Engineering Lab II	2	
CHE 452	Plant Design and Economics II (D1, C2)	3	
	Approved Professional Elective**	3	
	Approved Track Elective***	3-4	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
		17-18	

* **General Education Outcomes:** if all Outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to fill each remaining space in order to meet the required earned credit total of your degree plan. See the "General Education Outcomes" section at the bottom of page two for more information on satisfying these requirements.

** **Professional Electives:** Half of the Professional Electives are to be 400-level or higher CHE courses taken at URI. A maximum of 6 credits in CHE 491 and 492 may be applied. In addition EGR 325, EGR 326, NUE 391, and NUE 392 are permissable approved professional electives. The remaining courses are to be 300-level or higher in natural sciences, 400-level or higher in engineering (BME, CHE, CVE, ELE, ISE, MCE, OCE), or 400-level or higher in MTH.

*** **Track Elective:** CHE 466, 548, 550, 574; BPS 503, 542; PHY 430, 545

All professional and track electives require prior approval by CHE advisor.

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Appendix H

Revised 8/2016

NOTICE OF CHANGE FORM

Notice of Change for: **B.S. Degree in Electrical Engineering**
Date: **March 1, 2018**

A. PROGRAM INFORMATION

1. **Name of institution**
   University of Rhode Island

2. **Name of department, division, school or college**
   Department: Electrical, Computer, and Biomedical Engineering
   College: College of Engineering

3. **Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.**
   Initiation date: Fall 2018
   First degree date: December 2018

4. **Intended location of the program**
   Kingston Campus, College of Engineering

5. **Summary description of proposed program (not to exceed 2 pages).**
   Currently, the curriculum allows professional electives to be drawn from a list; this change adds a new course in robotics, ELE/MCE/OCE 456, to the list. The catalog language change appears in the second footnote.

6. **If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.**

   University Catalog Description:

   The electrical engineering major requires 120–123 credits.

   Freshman Year First semester: 15 credits
   CHM 101 (3), 102 (1); ECN 201 (3); EGR 105 (1); MTH 141 (4); and general education outcome(s)[1] (3).

   Second semester: 15 credits
   CSC 200 (4); EGR 106 (2); ELE 101 (1); MTH 142 (4); and PHY 203 (3), 273 (1).

   Sophomore Year First semester: 17 credits
   ELE 201 (3), 202 (1); MTH 362 (3); PHY 204 (3), 274 (1); and general education outcome(s)[1] (6).

   Second semester: 15 credits
   ELE 205 (2), 206 (1), 212 (4), 215 (1); MTH 243 (3); and PHY 205 (3), 275 (1).

Junior Year First semester: 14 credits
ELE 313 (3), 331 (4), 338 (3), 339 (1); MTH 451 (3) **or** ISE 311 (3).

Second semester: 15 credits
ELE 301 (3), 302 (1), 314 (3), 322 (4), 343 (3), 344 (1).

Senior Year First semester: 14–16 credits
ELE 400 (1), 480 (3) ***[capstone]*** – **(*see note*)**

Second semester: 15–16 credits
ELE 481 (3) ***[capstone]*** – ***(see note)***

Note: *Senior Year total credits for two (2) semesters: 29–32. See your advisor for help in preparing a suitable program.* ***Required courses:*** professional elective[2] (4); professional electives[2] (9–12); general education outcome(s)[1](9).

[1]*General Education Outcomes (A1–D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to fill each remaining space in order to meet the required earned credit total of your degree plan. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.*

[2]*Professional Elective Requirements:* Four (4) courses that satisfy ***both*** of the following:
(a) Three (3) courses from: ELE 401/402, 423, 425, 432, 435/436, 444/445, 447/448, 456, 457, 458/459,
and at least one (1) must be from: 401/402, 423, 432, 444/445, 447/448;
and at least one (1) must include a lab component (401/402, 435/436, 444/445, 447/448, 458/459).
(b) The fourth course must be from: an additional course ***from (a) above;*** BME/ELE 461; ELE 405/406, 408/409, 437, 438, 470; ***with prior approval*** of the electrical, computer, and biomedical engineering department chairperson, any other 300-, or 400-level College of Engineering course not required by the ELE major.

7. Signature of the President

_____
David M. Dooley

ELECTRICAL ENGINEERING - Class of 2022 (DRAFT)

Total Credits = 120 -123

Freshman Year *Fall* Semester

Course Code	Description	Cr	
CHM 101	General Chemistry Lec I (A1)	3	
CHM 102	General Chemistry I Lab	1	
ECN 201	Principles of Microeconomics (A2)	3	
EGR 105	Foundations of Engineering I (A4)	1	
MTH 141 +	Calculus I (A1, B3)	4	
	General Education Outcome(s)*	3	
		15	

Freshman Year *Spring* Semester

Course Code	Description	Cr	
CSC 200	Computer Problem Solving	4	
EGR 106	Foundations of Engineering II (A4)	2	
ELE 101	Intro to Electrical Engineering	1	
MTH 142 +	Calculus II (B3)	4	
PHY 203	Elementary Physics I (A1)	3	
PHY 273	Elementary Physics Lab I (A1)	1	
		15	

Sophomore Year *Fall* Semester

Course Code	Description	Cr	
ELE 201	Digital Circuit Design	3	
ELE 202	Digital Circuit Design Lab	1	
MTH 362	Advanced Engineering Mathematics I	3	
PHY 204	Elementary Physics II (A1)	3	
PHY 274	Elementary Physics Lab II (A1)	1	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
		17	

Sophomore Year *Spring* Semester

Course Code	Description	Cr	
ELE 205	Microprocessors	2	
ELE 206	Microprocessor Lab	1	
ELE 212 +	Linear Circuit Theory	4	
ELE 215	Linear Circuits Lab	1	
MTH 243 +	Calculus for Functions of Several Vars (A1, B3)	3	
PHY 205	Elementary Physics III Lec (A1, B3)	3	
PHY 275	Elementary Physics III Lab (A1, B3)	1	
		15	

Admission to the COE required for enrollment in "300" level and higher COE courses. Admission requires at least a 2.0 cumulative GPA and a C- or higher in each of the following; EGR 105 & 106, CHM 101/102, MTH 141 & 142, PHY 203/273, and either PHY 204/274 *or* CHM 112/114

Junior Year *Fall* Semester

Course Code	Description	Cr	
ELE 313 +	Linear Systems	3	
ELE 331	Intro to Solid State Devices	4	
ELE 338 +	Electronics I	3	
ELE 339	Electronics I Lab	1	
MTH 451 ***or*** ISE 311	Intro to Probability and Statistics ***or*** Probability and Statistics for Engineers	3	
		14	

Junior Year *Spring* Semester

Course Code	Description	Cr	
ELE 301	Electronic Design Automation	3	
ELE 302	Electronic Design Automation Lab	1	
ELE 314	Linear Systems and Signals	3	
ELE 322	Electromagnetic Fields I	4	
ELE 343	Electronics II	3	
ELE 344	Electronics II Lab	1	
		15	

Senior Year *Fall* Semester

Course Code	Description	Cr	
ELE 400	Intro to Professional Practice	1	
ELE 480 +	Capstone Design I (D1)	3	
	Professional Elective**	4	
	Professional Elective**	3-4	
	Professional Elective**	3-4	
		14 -16	

Senior Year *Spring* Semester

Course Code	Description	Cr	
ELE 481 +	Capstone Design II	3	
	Professional Elective**	3-4	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
	General Education Outcome(s)*	3	
		15 -16	

***General Education Outcomes:** if all Outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to fill each remaining space in order to meet the required earned credit total of your degree plan. See the "General Education Outcomes" section at the bottom of page two for more information on satisfying these requirements.

****Professional Electives:** ***Four (4)*** courses that satisfy ***both*** of the following:

(a) ***Three*** **(3)** courses from: ELE 401/402, 423, 425, 432, 435/436, 444/445, 447/448, 456, 457, 458/459,

and at least one **(1)** must be from; 401/402, 423, 432, 444/445, 447/448,

and at least one **(1)** must include a lab component (401/402, 435/436, 444/445, 447/448, 458/459);

and **(b)** The ***fourth*** course must be from: an additional course from ***(a) above;*** BME/ELE 461; ELE 405/406, 408/409, 437, 438, 470; with prior approval of the Electrical, Computer, and Biomedical Engineering department chairperson, any other 300- or 400-level College of Engineering course not required by the ELE major.

THE
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Notice of Change RIBGHE

Appendix I

Revised 10-2009

Notice of Change for B.S. Industrial and Systems Engineering
Date: 3/2/18

A. PROGRAM INFORMATION

1. Name of institution
University of Rhode Island

2. Name of department, division, school or college
Department: MCISE
College: COE

3. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.
Initiation date: Fall 2018
First degree date: Spring 2022

4. Intended location of the program
Kingston

5. Summary description of proposed program (not to exceed 2 pages).
The Industrial and Systems Engineering program is proposing several changes in the B.S. degree requirements. They are summarized as follows:

Attached is the new curriculum plan for Class of 2022, which includes the following changes:
1) ISE 220 – remove from curriculum
2) ISE 261G – add to curriculum
3) replace PHL 212 (ethics) with EGR 316G (engineering ethics)
4) Delete one "General Education" slot from Senior year, as newly required courses covering general education outcomes means less of these courses students will need to find on their own
5) replace MCE 263, CVE 220, and ELE 220 with a "technical elective" that allows students to choose two of the three courses that were previously all required
6) shift a professional elective from senior year, spring semester into spring of junior year so that students can be encouraged to enroll in electives that are only offered every other year
7) Change total credit count from 121-124 to 120
8) Renumber footnotes and add a footnote explaining the new technical elective

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

CURRENT:

The industrial and systems engineering major requires 121-124 credits.

Freshman Year First semester: 15 credits
CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); and general education outcome(s)[1] (6).

Second semester: 16 credits
EGR 106 (2); MTH 142 (4); PHY 203 (3), 273 (1); and general education outcome(s)[1](6).

Sophomore Year First semester: 17 credits
[ISE 240 (3) *and* 241 (1) ***or*** MCE 201 (3) *and* ISE 220 (1)**]**; MCE 262 (3); MTH 243 (3); PHL 212 (3); and PHY 204 (3), 274 (1).

Second semester: 16 credits
CVE 220 (3); **[**ISE 240 (3) *and* 241 (1) ***or*** MCE 201 (3) *and* ISE 220 (1)**]**; MCE 263 (3); MTH 362 **or** 244 (3); and Science Elective[2] (3).

Junior Year First semester: 15 credits
BUS 201 (3); CHE 333 (3); and ISE 311 (3), 325 (3), 332 (3).

Second semester: 15 credits
ELE 220 (3); ISE 304 (3), 312 (3), 333 (3); 334 (3).

Senior Year First semester: 12 credits
ISE 401 (3) **[capstone]**, 420 (3), 451 (3); and professional elective[3] (3).

Second semester: 15 credits
ISE 402 (3) **[capstone]**; professional electives[3] (9); and general education outcome(s)[1] (3).

[1]*General Education Outcomes (A1-D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to fill each remaining space in order to meet the required earned credit total of your degree plan. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.*

[2]*Science Elective:* choose from CHM 112, CHM 124, KIN 122, NRS 100, or PHY 205 and PHY 275

[3]*Professional Elective Requirements:* Must be satisfied by twelve (12) credits of professional electives, at least six (6) of which must be 400- or 500-level ISE courses not required by the ISE major. The remaining courses may be any 300-, 400-, or 500- level courses offered by the College of Engineering not required by the ISE major, CSC, MTH, or PHY (except CHE 428, 451, 452; CSC 320; MTH 381, 420, 451, 452; PHY 322, 381, 382; courses in professional practice; seminars); BUS 320, 341, 344, 355, 365, 420, 443, 444, 448, 449 450; ECN 323, 324, 327, 328, 344, 363, 368, 376; any 500-level STA courses (except STA 532); MBA 530, 550 (requires ISE/MBA 4+1 Admission); PSY 335, 384, 385, 434. *Note*: Only ISE 513 or STA 513 will be allowed – not both (these are cross-listed courses).

PROPOSED:

The industrial and systems engineering major requires 120 ~~121-124~~ credits.

Freshman Year First semester: 15 credits
CHM 101 (3), 102 (1); EGR 105 (1); MTH 141 (4); and general education outcome(s)[1] (6).

Second semester: 16 credits
EGR 106 (2); MTH 142 (4); PHY 203 (3), 273 (1); and general education outcome(s)[1](6).

Sophomore Year First semester: ~~17~~ 16-17 credits
[ISE 240 (3) *and* 241 (1) ***or*** MCE 201 (3)~~ *and* ISE 220 (1)~~**]**; ISE 261G (3); MCE 262 (3); MTH 243 (3); ~~PHL 212 (3)~~; and PHY 204 (3), 274 (1).

Second semester: ~~16~~ 15-16 credits
EGR 316G (3); ~~CVE 220 (3);~~ **[**ISE 240 (3) *and* 241 (1) ***or*** MCE 201 (3)~~ *and* ISE 220 (1)~~**]**; Technical Elective (3)[2]; ~~MCE 263 (3);~~ MTH 362 **or** 244 (3); and Science ~~Elective[2]~~ Elective[3] (3).

Junior Year First semester: 15 credits
BUS 201 (3); CHE 333 (3); and ISE 311 (3), 325 (3), 332 (3).

Second semester: 15 credits
~~ELE 220 (3);~~ ISE 304 (3), 312 (3), 333 (3); 334 (3) and professional elective[4] (3).

Senior Year First semester: ~~12~~ 15 credits
ISE 401 (3) **[capstone]**, 420 (3), 451 (3); professional ~~elective[3]~~ elective[4] (3); general education outcome(s) [1] (3)

Second semester: ~~15~~12 credits
ISE 402 (3) **[capstone]**; Technical Elective (3)[2]; professional ~~electives[3]~~ electives[4] (~~9~~6); ~~and general education outcome(s)[1] (3).~~

[1]*General Education Outcomes (A1-D1): if all outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to ~~fill each remaining space in order to~~ meet the required earned credit total of your degree plan. A complete detailing of these requirements are listed in the college's curriculum requirements section of this catalog.*

[2]*~~Science~~ Technical Elective:* choose two of the three options of CVE 220, MCE 263, or ELE 220 ~~from CHM 112, CHM 124, KIN 122, NRS 100, or PHY 205 and PHY 275~~

[3] *Science Elective: choose from CHM 112, CHM 124, KIN 122, NRS 100, or PHY 205 and PHY 275*

~~[3]~~[4]*~~Professional~~ Professional Elective Requirements:* Must be satisfied by twelve (12) credits of professional electives, at least six (6) of which must be 400- or 500-level ISE courses not required by the ISE major. The remaining courses may be any 300-, 400-, or 500- level courses offered by the College of Engineering not required by the ISE major, CSC, MTH, or PHY (except CHE 428, 451, 452; CSC 320; MTH 381, 420, 451, 452; PHY 322, 381, 382; courses in professional practice; seminars); BUS 320, 341, 344, 355, 365, 420, 443, 444, 448, 449 450; ECN 323, 324, 327, 328, 344, 363, 368, 376; any 500-level STA courses (except STA 532); MBA 530, 550 (requires ISE/MBA 4+1 Admission); PSY 335, 384, 385, 434. *Note*: Only ISE 513 or STA 513 will be allowed – not both (these are cross-listed courses).

6. Signature of the President

_____

David M. Dooley

INDUSTRIAL AND SYSTEMS ENGINEERING - Class of 2022

(DRAFT)

Total Credits = 120

Freshman Year *Fall* Semester

Course Code	Description	Cr	
CHM 101	General Chemistry Lec I (A1)	3	
CHM 102	General Chemistry I Lab	1	
EGR 105	Foundations of Engineering I (A4)	1	
MTH 141 +	Calculus I (A1, B3)	4	
	General Education Outcome*	3	
	General Education Outcome*	3	
		15	

Freshman Year *Spring* Semester

Course Code	Description	Cr	
EGR 106	Foundations of Engineering II (A4)	2	
MTH 142 +	Calculus II (B3)	4	
PHY 203	Elementary Physics I (A1)	3	
PHY 273	Elementary Physics Lab I (A1)	1	
	General Education Outcome*	3	
	General Education Outcome*	3	
		16	

Sophomore Year *Fall* Semester

Course Code	Description	Cr	
ISE 240 and 241 ***or*** MCE 201	Mfg Processes & Systems (3), Mfg Processes & Systems Lab (1) / Engineering Graphics (3)	4 or 3	
ISE/SUS 261G	Sustainable Lean Production (A1, B4, G)	3	
MCE 262	Statics	3	
MTH 243 +	Calculus for Functions of Several Vars (A1, B3)	3	
PHY 204	Elementary Physics II (A1)	3	
PHY 274	Elementary Physics II Lab (A1)	1	
		16-17	

Sophomore Year *Spring* Semester

Course Code	Description	Cr	
EGR 316G	Engineering Ethics (A3, C1, G)	3	
ISE 240 and 241 ***or*** MCE 201	Mfg Processes & Systems (3), Mfg Processes & Systems Lab (1) / Engineering Graphics (3)	4 or 3	
	Technical Elective**	3	
MTH 362 ***or*** MTH 244	Advanced Engineering Mathematics I ***or*** Differential Equations	3	
	Science Elective***	3	
		15-16	

Junior Year *Fall* Semester

Course Code	Description	Cr	
BUS 201	Financial Accounting	3	
CHE 333	Engineering Materials	3	
ISE 311	Probability & Statistics for Engineers	3	
ISE 325	Computer Tools for Engineers	3	
ISE 332	Deterministic Systems	3	
		15	

Junior Year *Spring* Semester

Course Code	Description	Cr	
ISE 304	Engineering Econ and Proj Planning	3	
ISE 312	Statistical Methods & Quality Systems	3	
ISE 333	Stochastic Systems	3	
ISE 334	Simulation Modeling and Analysis	3	
	Professional Elective****	3	
		15	

Senior Year *Fall* Semester

Course Code	Description	Cr	
ISE 401	ISE Capstone Design I	3	
ISE 420	Intro To Human Factors & Ergonomics	3	
ISE 451	Production System Design	3	
	Professional Elective****	3	
	General Education Outcome*	3	
		15	

Senior Year *Spring* Semester

Course Code	Description	Cr	
ISE 402	ISE Capstone Design II (D1)	3	
	Technical Elective**	3	
	Professional Elective****	3	
	Professional Elective****	3	
		12	

* **General Education Outcomes:** If all Outcomes are satisfied in fewer spaces than provided, you must take a course of your choice (Free Elective) to reach a minimum of 120 credits. See the "Genereal Education Outcomes" section at the bottom of page two for details on satisfying these requirements

** **Technical Elective:** Choose two of the three options of CVE 220, MCE 263, or ELE 220

*** **Science Elective:** Choose from CHM 112, CHM 124, KIN 122, NRS 100, or PHY 205/275

****

Professional Electives: Must be satisfied by ***twelve (12) credits*** of professional electives, ***at least six (6)*** of which must be 400- or 500-level ISE courses not required by the ISE major. The ***remaining courses*** may be any 300-, 400-, or 500- level courses offered by the College of Engineering not required by the ISE major, CSC, MTH, or PHY (***except*** CHE 428, 451, 452; CSC 320; MTH 381, 420, 451, 452; PHY 322, 381, 382; courses in professional practice; seminars); BUS 320, 341, 344, 355, 365, 420, 443, 444, 448, 449, 450; ECN 323, 324, 327, 328, 344, 363, 368, 376; any 500-level STA courses (except STA 532); MBA 530, 550 (requires ISE/MBA 4+1 admission); PSY 335, 384, 385, 434. Note: Only ISE 513 or STA 513 will be allowed – not both (these are cross-listed courses).

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Appendix K

REVISED 12/2016

Modified Form
For New Interdisciplinary Minors, and New Tracks/Options/Sub-plans/Concentrations

A Proposal for: Consolidation of tracks in the Animal Science and Technology major

Date: February 21, 2018

A. PROGRAM INFORMATION

A1. Name of institution: University of Rhode Island

A2. Name of department, division, school or college
Department - FAVS
College - CELS

A3. Title of proposed program and Classification of Instructional Programs (CIP) code
Program title - existing
Classification code (CIP) - existing

A4. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.
Initiation date: September 2018
First degree date: May 2019

A5. Intended location of the program: Kingston, Rhode Island

A6. Description of institutional review and approval process

	Approval Date
Department - FAVS	10-20-2017
College	12-20-2017
CAC/Graduate Council	
Faculty Senate	
President of the University	

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

We are not proposing a new program but rather are proposing to modify the options available to our students. Currently, this major has three options available to students: Pre-veterinary, Animal Science and Animal Management. One of the primary differences between our three curriculum options is the suite of basic science courses that are required, with the Pre-veterinary option being the most rigorous and Animal Management being the least rigorous.

The **Pre-veterinary option** has the least flexibility of the three options and this is necessary and dictated by the course prerequisites needed to apply to the various Colleges of Veterinary Medicine located domestically and abroad. In this proposal, although we have made a few minor adjustments to reflect the current course prerequisites for DVM programs, this option remains largely unchanged.

Option sheet update:

1. **Replace STA 307 or 308 or 409 with STA 308**. Veterinary colleges require an introductory statistics class and some of our students have run into conflicts with vet colleges admissions recognizing any other course than the one named Introductory Statistics.
2. Replace requirement for **WRT 106 with WRT 104 or 106** and replace requirement for **WRT 332 with WRT 332 or 334**. Both of these changes will provide greater flexibility (see attached letter of support from Dr. Jeremiah Dyehouse, Dept Chair, Writing and Rhetoric).

Over the past year, the Animal and Veterinary Science faculty have been reviewing the two remaining options available to our majors: Animal Management and Animal Science with the goal of consolidating these two options into **one Animal Science option** in order to reduce redundancy between the options and provide greater coursework flexibility to students to enable them to tailor their training and coursework to their desired career path. Additionally, we have developed an extensive advising sheet with approved courses suggested for various focus areas.

Summary of changes in consolidating two options into one Animal Science option.

	Old Animal Mgmt	Old Animal Science	New Option
Basic Non-Science Requirement	WRT 104 or 106	WRT 104 or 106	WRT 104 or 106 and one WRT 3XX or above
Basic Science	**24 credits** BIO 101, 102, 103, 104, CHM 101 or 103, CHM 102 or 105, 112 or 124, 114 or 126, MTH 107 or higher Balance 5 credits from approved course list	**33-39 credits** BIO 101, 102, 103, 104, CHM 101, 102, 112, 114, CHM 124/126 or 226/227/228, CMB 201 or 211, MTH 131, STA 307 or 308 Balance 4-6 credits from approved course list	**25 credits** BIO 101, 102, 103, 104, CHM 101 or 103, CHM 102 or 105, MTH course which ~~(~~fulfills A1,B3 gen ed outcomes~~)~~ Balance 10 credits from approved course list
Concentration	**26 credits** AVS 323, 324, 325, 331, 333, 343, 462 Balance 6 credits from approved course list	**25 credits** AVS 323, 324, 331, 332, 333, 412, 472 AVS or BIO (6 cr) Balance 0 credits	**25 credits** AVS 331, 333, 332, 343, AVS 4XX (6 cr) Balance 9 credits from approved course list
Supporting Electives	**28-29 credits** AVS 104, 132G, 201, 212, 275 Balance 13-14 credits from approved course list	**21-27 credits** AVS 212, 275 Balance 14-20 credits from approved course list	**29 credits** AVS 212 Balance 26 credits from approved course list

A8. Signature of the President

_____
David M. Dooley

A9. Person to contact during the proposal review
Name: Marta Gomez-Chiarri
Title: Professor and Dept. Chair for 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.
Not applicable

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

B1. Why is the new program being developed?

This is not a new program but a modification of an existing program (see above summary description A7).

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

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

This is not a new program but a modification of an existing program (see above summary description A7).

B3. What entities are advocating for this program? Was an advisory board used to develop the curriculum?
This is not a new program but a modification of an existing program (see above summary description A7).

C. INSTITUTIONAL ROLE: The program should be clearly related to the published role, scope, 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, scope, and mission of the institution and how it is related to the institution's Academic Plan.

This is not a new program but a modification of an existing program (see above summary description A7).

D. INTER-INSTITUTIONAL CONSIDERATIONS:

D1. What are the similar programs in the state and region?

a. If similar programs exist, how is this program different or why is duplication necessary?

This is not a new program but a modification of an existing program (see above summary description A7).

b. 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?

This is not a new program but a modification of an existing program (see above summary description A7).

D2. How do courses in this program transfer to other schools?

This is not a new program but a modification of an existing program (see above summary description A7).

D3. How does this program align to academic programs at other institutions?

This is not a new program but a modification of an existing program (see above summary description A7).

D4. Are recipients of this credential accepted into programs at the next degree level without issue?

This is not a new program but a modification of an existing program (see above summary description A7).

D5. How does this program of study interface with degree programs at the level below them?

This is not a new program but a modification of an existing program (see above summary description A7).

D6. Are cooperative agreements or affiliations established? If so, what?

Not applicable

E. PROGRAM:

E1. Are there pre-requisite courses? If so, please explain/list?

E2. Curriculum

a. How many credit hours are required to graduate (include all general education and pre-requisites)?

This is not a new program but a modification of an existing program (see above summary description A7) – credits to graduate remain at 120.

b. What courses are required for the program?

c. What are the new courses and descriptions that will go into the course catalog?

This major, offered by the Department of Fisheries, Animal and Veterinary Science, is designed for students interested in applied animal science careers. Animal and veterinary sciences play a vital role in the management and care of livestock, companion animals as well as those animals maintained at zoos and aquariums and laboratory animal facilities. Options are available to students interested in animal sciences or veterinary medicine~~, animal sciences, and animal management~~.

The major requires the following core courses: AVS 101, 102, 110, 331, 332, 333 (12 credits) plus option-specific courses as indicated below. Including the core courses, there are ~~16-42~~25-50 credits of basic science~~,~~ including BIO 101/103 and BIO 102/104, 2~~5~~-2~~56~~ credits of concentration courses and 11-2~~97~~ credits of supporting courses required for this major. A total of 120 credits are required for graduation.

Animal Science Option. This option includes coursework in animal management, nutrition, physiology, behavior, and disease and provides broad flexibility for students in their choice of animal science courses. Students have the option to focus their coursework specifically on domestic livestock, exotic animals or animal technology or be more broadly focused.~~.~~ Research techniques and procedures for animal care are emphasized along with a strong background in the sciences.~~Students will normally emphasize one or more of these areas. A strong preparatory background in the basic sciences is needed.~~ Students in this option ~~seek employment~~pursue careers as researchers, veterinary technicians, food animal producers, laboratory animal technician or high school agricultural education teacher. Additionally, there are career opportunities at zoos or aquariums (educator, researcher and exotic animal manager), within the federal, state and local government as well as with many animal-related businesses. ~~in technical areas and/or continue their studies in specialized graduate programs.~~
In addition to the core courses specified of the major, the following courses are required: AVS 212 and 343 and 6 additional credits in AVS~~, 275, 323, 324, 332, 412, 472; AVS 420 or BIO 352~~; COM 100, CHM 101~~/,~~102 or 103/105~~, 112, 114; CHM 124, 126 or CHM 226, 227, 228; CMB 201 or 211;, and~~ MTH course which fulfills A1 and B3 general education outcomes~~, 131 and STA 307 or 308(fulfills A1, B3),~~ WRT 104 or 106, WRT 3XX or 4XX. The remaining credit requirements will be selected from the concentration courses (9~~6~~ credits) and supporting electives (~~-~~26~~1 27~~ credits) approved for this option.

~~**Animal Management Option.** Research techniques and procedures for animal care are emphasized along with a strong background in the sciences. Students with this training and animal experience would be employed in research and teaching facilities as animal technicians, animal technologists, supervisors of animal technicians, and assistant research project leaders.~~
~~In addition to the core courses specified for the major, the following courses are required: AVS 104, 201, 212, 275, 323, 324, 325, 343, 462; CHM 101, 102, 112, 114 or CHM 103, 105, 124, 126; MTH 107 or higher. The remaining credits will be selected from the concentration courses (6 credits) and supporting electives (12 credits) approved for this option.~~

Pre-Veterinary Option. This option requires a demonstrated capability in the basic sciences and prepares students for admission to veterinary schools offering ~~the~~ a ~~D.V.M.~~Doctorate of Veterinary Medicine (DVM) degree. Students in this track will also be well prepared to pursue graduate programs in animal physiology, nutrition and health. Because admission requirements among schools are not totally uniform and are subject to change, students should determine specific requirements of the schools in which they are interested.
In addition to the core courses specified for the major, -the following courses are required: AVS 104, ~~332,~~ 412, 472; BIO 341, BIO/CMB 352; COM 100, CMB 211, 311; -BUS or ECN (3 credits); CHM 101, 102, 112, 114, 226, 227, 228; PHY 111, 112, 185, 186; MTH 131, ~~and~~ STA ~~307 or STA~~ 308, WRT 104 or 106, WRT 332 or 334 ~~or 409~~. The remaining credits will be selected from the concentration courses (6~~9~~ credits) and supporting electives (6 credits) approved for this option.

d. Are there specializations and options? If so, please describe.
See above summary description A7

e. Is the program content guided by program-specific accreditation standards or other outside guidance?
This is not a new program but a modification of an existing program (see above summary description A7).

f. What are the learning goals (what students are expected to gain, achieve, know, or demonstrate by completion of the program)?
This is not a new program but a modification of an existing program (see above summary description A7).

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. What are the number of each needed?
This is not a new program but a modification of an existing program (see above summary description A7).

F2. Are these new positions or reassignments?
This is not a new program but a modification of an existing program (see above summary description A7).

F3. What are the minimal degree level and academic/technical field requirements and certifications required for teaching in this program?
This is not a new program but a modification of an existing program (see above summary description A7).

G. STUDENTS:

G1. How are students selected for the program?

This is not a new program but a modification of an existing program (see above summary description A7).

G2. Are there admission requirements?

This is not a new program but a modification of an existing program (see above summary description A7).

G3. What is the primary source of students?

a. New students or drawn from other programs?

This is not a new program but a modification of an existing program (see above summary description A7).

b. Industry sponsored students/ employees? Describe.

This is not a new program but a modification of an existing program (see above summary description A7).

G4. What is the estimated number of students in the program?

This is not a new program but a modification of an existing program (see above summary description A7).

G5. What is the estimated number of annual graduates?

This is not a new program but a modification of an existing program (see above summary description A7).

H. EVALUATION:

H1. How will the program be evaluated?

a. Performance measures to evaluate the program.

b. This is not a new program but a modification of an existing program (see above summary description A7).

b. Will the program be accredited? If so, when? How?

This is not a new program but a modification of an existing program (see above summary description A7).

I. WHAT SPECIAL EQUIPMENT OR RESOURCES ARE NEEDED?

I1. Special instructional resources and services needed? (Clinical space, internships, proctors)

This is not a new program but a modification of an existing program (see above summary description A7).

I2. Facilities and capital equipment?

This is not a new program but a modification of an existing program (see above summary description A7).

J. IS THE PROGRAM FINANCIALLY VIABLE?

J1. ALL PROPOSALS: Complete the Rhode Island Office of Postsecondary Commissioner Budget Form demonstrating either

a. the need for additional resources or

b. 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. If no new funds are requested, proposers shall request a Statement of No Financial Impact from the URI Budget and Financial Planning Office.

See attached

THE
UNIVERSITY
OF RHODE ISLAND

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

THINK BIG WE DO™

DATE: March 9, 2018

TO: Nancy F. Neff
Coordinator, Faculty Senate

FROM: Linda Barrett
Director, Budget and Financial Planning

SUBJECT: Proposal for a Consolidation of Tracks in Animal Science and Technology major

As requested in an email from Katherine Petersson, Associate Professor in the College of Environmental Life Sciences, dated February 22, 2018, the Budget and Financial Planning Office has reviewed the submitted documents related to the proposal for a Consolidation of tracks in the Animal Science and Technology major.

The Budget and Financial Planning Office, including communication with Enrollment Services, concurs that the request for a Consolidation of Tracks in the Animal Science and Technology major is not anticipated to have an impact on the Fund 100 unrestricted budget as it has been presented and that no new revenues are projected since the major is for students that are currently enrolled at URI.

Please let us know if you require any further information.

cc: Donald DeHayes
Laura Beauvais
John Kirby
Cheryl Hinkson
Joanne Lawrence
Dean Libutti
Matthew Bodah
Katherine Petersson
Colleen Robillard
John Humphrey

Office/BudgetImpactStatements/animalscienceandtechnologymajor/BudgetImpactStatementLetterFinal

ACADEMIC PROGRAM BUDGET FORM Not a new program, it should have no changes

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 □ Combination of full- and part-time

REVENUE ESTIMATES

	Year 1	Year 2	Year 3	Year 4
	2019	2020	2021	2022
Tuition: In-State	$12,002	$12,488	$12,488	$12,488
Tuition: Out-State	$28,972	$29,402	$29,402	$29,402
Tuition: Regional	$21,004	$21,854	$21,854	$21,854
Mandatory fees per student	$1,790	$1,908	$1,908	$1,908
FTE # of New Students: In-State	0	0	0	0
FTE # of New Students: Out-State	0	0	0	0
# 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	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Out-of-State tuition	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Regional tuition								
Mandatory fees	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Second Year Students								
In-State tuition			$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Out-of-State tuition			$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Regional tuition								
Mandatory fees			$0.00	$0.00	$0.00	$0.00	$0.00	$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	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$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	**$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.

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	$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 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	$0.00	$0.00	$0.00	$0.00
Total of Additional Resources Required for	$0.00	$0.00	$0.00	$0.00
Excess/Deficiency	**$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.

THE UNIVERSITY OF RHODE ISLAND

Effective Fall 2018

Animal & Veterinary Science - BS
Option: Animal Science
EL_ANSC_BS 120 Earned credits Total

Student: _____
Student ID: _____
Advisor: _____

Step 1:REVIEW YOUR PROGRAM REQUIREMENTS

1. Basic Non-Science Requirements (9 cr)				
	Course	Semester	Grade	Credit
Com Fundamentals (B2)	COM 100			3
Wrt to Inform & Explain (B1, B4) or Intro to Research Wrt (B1, B4)	WRT 104 or 106			3
WRT 3XX or 4XX	WRT			3
2. Basic Science Requirements (25 cr)				
Principles of Biology I (A1)	BIO 101			3
Principles of Biology I Lab (A1)	BIO 103			1
Principles of Biology II (A1)	BIO 102			3
Principles of Biology II Lab (A1)	BIO 104			1
General Chemistry Lecture I or Introductory Chemistry (A1)	CHM 101 or 103			3
Laboratory for Chemistry 101 or Introductory Chemistry lab (A1)	CHM 102 or 105			1
MTH (fulfills A1,B3)				3

3. Introductory Professional Course Requirement (5 cr)				
Introduction to Animal Science (A1)	AVS 101			3
Intro. Animal Science Laboratory	AVS 102			1
Freshman Seminar AVS	AVS 110			1

4. Concentration Course Requirements (25 cr)*				
	Course	Semester	Grade	Credit
Anatomy & Physiology	AVS 331			3
Anatomy & Physiology Lab	AVS 333			1
Animal Diseases	AVS 332			3
Behavior of Domestic Animals	AVS 343			3
	AVS 4____			3
	AVS 4____			3

*AVS GPA (min 2.0 required)
Maximum 3 credits AVS 491/492

5. Supporting Elective Requirements (29 cr)^				
	Course	Semester	Grade	Credit
Feeds and Feeding*	AVS 212			3

*Requirement waived if taking AVS 412
^Maximum 9 credits total of AVS 399, 491, 492 can be counted towards degree

6. Free Electives (2-3 cr)				
Planning for Academic Success	URI 101			1

7. GenEd courses and Free Electives (max 24 cr)				
Courses in this section will be courses fulfilling GenEd outcomes that do not appear in sections 1-5 of this option sheet. Careful selection of these courses will leave space for additional courses in your major or minor area of interest.				

Total credits _____

Approved for Graduation
Advisor_____Date: _____

THE UNIVERSITY OF RHODE ISLAND

Animal & Veterinary Science - BS
120 Credits Total
Option: Animal Science

Student: _____
Student ID:_____
Advisor:_____

General Education Guidelines:

General education is 40 credits. Each of the twelve outcomes (A1-D1) must be met by at least 3 credits. A single course may meet more than one outcome, but cannot be double counted towards the 40 credit total. At least one course must be a Grand Challenge (G). No more than twelve credits can have the same course code. General education courses may also be used to meet requirements of the major or minor when appropriate.

Step 2: LIST COURSES THAT MEET GEN ED

General Education Credit Count						
At least 40 credits, no more than 12 credits with the same course code						
Course	**Outcome**	**Credit**		**Course**	**Outcome**	**Credit**
AVS 101*	A1	3				
BIO 101*	A1	3				
BIO 102*	A1	3				
BIO 103*	A1	1				
BIO 104*	A1	1				
COM 100*	B2	3				
CHM 101* or 103*	A1	3				
CHM 102* or 105*	A1	1				
WRT 104* or 106*	B1, B4	3				
MTH	A1, B3	3				
					Total Gen Ed credits	40

NOTE: BECAUSE MOST COURSES MEET MORE THAN ONE OUTCOME, YOUR OUTCOME AUDIT MIGHT BE COMPLETED BEFORE YOU REACH YOUR 40 CREDITS. HOWEVER, YOU MUST STILL COMPLETE 40 CREDITS OF GENERAL EDUCATION

Advising Notes:

Step 3: LIST COURSE AS EACH OUTCOME IS MET

General Education Outcome Audit	
	Course
KNOWLEDGE	
A1. STEM	
A2. Social & Behavioral Science	
A3. Humanities	
A4. Arts & Design	
COMPETENCIES	
B1. Write effectively	
B2. Communicate effectively	
B3. Mathematical, statistical, or computational strategics	
B4. Information literacy	
RESPONSIBILITIES	
C1. Civic knowledge & responsibilities	
C2. Global responsibilities	
C3. Diversity & Inclusion	
INTEGRATE & APPLY	
D1. Ability to synthesize	
GRAND CHALLENGE	
course of your 40 credits is an approved "G" course	
NOTE: COURSES MARKED WITH A * CAN BE USED TO SATISFY MAJOR AND GENERAL EDUCATION	

Effective Fall 2018

B.S. Animal & Veterinary Science- Animal Science Option- Effective Fall 2018
Sample 4 Year Plan
College of the Environment and Life Sciences

Freshman Year Fall Semester

Course Code	Description	Cr	
AVS 101,102	Introduction to Animal Science, Lab	4	
BIO 101,103	Principles of Biology I, Lab	4	
COM 100	COM Fundamentals	3	
	B2 General Education Course	3	
URI 101	Planning for Academic Success	1	
		15	

Freshman Year Spring Semester

Course Code	Description	Cr	
AVS 110	AVS Freshman Seminar	1	
BIO 102,104	Principles of Biology II, Lab	4	
WRT 104 OR 106	Writing Gen Ed (B4)	3	
	Concentration or Supporting Elective Courses	3	
		3	
	General Education Course	3	
		17	

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

Sophomore Year Fall Semester

Course Code	Description	Cr	
AVS 331/333	Anatomy and Physiology Lecture & Lab	4	
	Concentration	3	
	Supporting Elective	4	
CHM	Chemistry course with lab	4	
		15	

Sophomore Year Spring Semester

Course Code	Description	Cr	
AVS 332	Animal Diseases	3	
AVS 343	Behavior of Domestic Animals	3	
	Supporting Elective	3	
WRT 3XX or 4XX	Writing course	3	
	General Education Course	3	
		15	

Year 2 Milestones: Earn 60 credits and a GPA of 2.0 or higher. Meet with your Advisor to dicuss major and experiential learning opportunities

Junior Year Fall Semester

Course Code	Description	Cr	
	Concentration or Supporting Elective Courses	3	
	Concentration or Supporting Elective Courses	3	
	Concentration or Supporting Elective Courses	3	
	General Education course	3-4	
	Free Elective	3-4	
		15-17	

Junior Year Spring Semester

Course Code	Description	Cr	
	Concentration or Supporting Elective Courses	3	
	Concentration or Supporting Elective Courses	3	
	Concentration or Supporting Elective Courses	3	
	General Education course	3-4	
	Free Elective	3-4	
		15-17	

Year 3 Milestones: Earn 90 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 or Supporting Elective Courses	9	
	General Education course	3-4	
	Free Elective	3-4	
		15-17	

Senior Year Spring Semester

Course Code	Description	Cr	
	Concentration or Supporting Elective Courses	9	
	General Education course	3-4	
	Free Elective	3-4	
		15-17	

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

Total Credits to Graduate = **120**

B.S. Animal & Veterinary Science
Effective Fall 2018

Approved Concentration Courses					
			Focus Area		
Course Code	GenEd outcome	Course (Semester offered, credits)	Livestock*	Exotic*	Pre-Vet and Technology*
AVS 301/302		Seminar in Animal and Veterinary Science (F, S, 1 cr)			
AVS 323		Animal Management I (F, 3 crs)	X		
AVS 324		Animal Management II (S, 3 crs)	X		
AVS 325		Animal Management III (S, 3 crs)		X	
AVS 326		Equine Management (S, 3 crs)	X		
AVS 343		Behavior of Domestic Animals (S, 3 crs)	X	X	X
AVS 344		Behavior of Domestic Animal Laboratory (S, 2 crs)		X	
AVS 390		Wildlife and Human Disease (S, 3 crs)		X	
AVS 399		Animal Science Internship (F,S, 1-6 crs)			
AVS 412		Animal Nutrition (F, 3 crs)^			
AVS 420		Animal Breeding & Genetics (S, 3 crs)	X		
AVS 440		Seminar on Marine Mammals (F, 3 crs)		X	
AVS 442		required, 3 crs)		X	X
AVS 462		Laboratory Animal Techniques (S, 4 crs)			X
AVS 463		Animal Veterinary Technology (S, 3 crs)			X
AVS 472		Physiology of Reproduction (S, 3 crs)^	X		
AVS 473		Physiology of Reproduction Lab (S, 1 cr)	X		
AVS 491/492		Special Projects (F,S, 1-6 crs)			
AFS 504		Pathobiology (S alternate years, 3 crs)^			X
BIO 341		Cell Biology (F, 3 crs)^			X
BIO 352		General Genetics (F, S,Su, 4 crs)^			X
BIO 437		Molecular Biology (S, 4 crs)^			X
CMB 333		Immunology and Serology (F, 3 crs)^			X
SAFS 400G	D1, G	Reimagining Food Systems Through Agroecology (F, 3 crs)	X		
NRS		Any 300 or 400 level course		X	
		Any 300 or 400 level course in CELS			
Approved Supporting Elective Courses					
ALL OF THE ABOVE COURSES PLUS:					
AVS 104		Advance Animal Management Techniques (F, S, 2 crs)^	X		X
AVS 132	A2, G	Sustainable Agriculture, Food Systems and Society (S, 3 crs)	X	X	X
AFS 190	A1	Issues in Biotechnology (F, S, online, 3 crs)			X
AVS 201		Companion Animal Management (F, 3 crs)			X
AVS 275		Pasture and Grazing Management in Sustainable Ag (F, 4 crs)	X		
BUS 140		Introduction to Business	X		
BUS 149		Introduction to Entrepreneurship	X		
ECN 201	A2	Principles of Economics, Microeconomics	X		
EEC 105	A2	Introduction to Resource Economics	X		
NRS 100	A1	Natural Resource Conservation (F, S, 3 crs ,A1)		X	
NRS 223		Conservation Biology (S, 4 crs)		X	
		Any course in CELS			
Approved Basic Science Courses or Supporting Electives for Management Option **Any course taught in CELS or College of Business or with the prefix APG, CHM, CSC, ECN/EEC, MTH, PHY, STA**					
BIO 341		Cell Biology^			
BIO 352		General Genetics^			
BIO 437		Molecular Biology^			
CHM 124/126		Introduction to Organic Chemistry & Lab^			
CMB 311		Introductory Biochemistry^			
CMB 333		Immunology and Serology^			
MIC 201/211		Introductory Medical Microbiology/Intro Micro^			
MTH 131	A1, B3	Calculus^			
STA 220	B3	Statistics in Modern Society			
STA 308		Introductory Statistics^			
PHY 111/185	A1, B3	Physics I			

*Suggested courses for each focus area

^Recommended courses for students interested in Graduate School, dependent upon area of interest

THE UNIVERSITY OF RHODE ISLAND

Effective Fall 2018

Animal & Veterinary Science - BS
Option: Pre-veterinary
EL_ANSC_BS 120 Earned credits Total

Student: _____
Student ID: _____
Advisor: _____

Step 1:REVIEW YOUR PROGRAM REQUIREMENTS

1. Basic Non-Science Requirements (9 credits)

	Course	Semester	Grade	Credit
Com Fundamentals (B2)	COM 100			3
Wrt to Inform & Explain (B1, B4) or Intro to Research Wrt (B1, B4)	WRT 104 or 106			3
Technical Writing (B1, B2) or Science Writing (B1, B2)	WRT 332 or 334			3

2. Basic Science Requirements (50 credits)

Principles of Biology I (A1)	BIO 101			3
Principles of Biology I Lab (A1)	BIO 103			1
Principles of Biology II (A1)	BIO 102			3
Principles of Biology II Lab (A1)	BIO 104			1
General Genetics	BIO 352			4
General Chemistry Lecture I (A1)	CHM 101			3
Laboratory for Chemistry 101 (A1)	CHM 102			1
General Chemistry Lecture II (A1)	CHM 112			3
Laboratory for Chemistry 112 (A1)	CHM 114			1
Organic Chemistry Laboratory	CHM 226			2
Organic Chemistry I	CHM 227			3
Organic Chemistry II	CHM 228			3
Introductory Microbiology	CMB 211			4
Introductory Biochemistry	CMB 311			3
Calculus (A1, B3)	MTH 131			3
Physics I (A1, B3)	PHY 111			3
Physics I Lab (A1, B3)	PHY 185			1
Physics II (A1, B3)	PHY 112			3
Physics II Lab (A1, B3)	PHY 186			1
Introductory Statistics	STA 308			4

3. Introductory Professional Course Requirement (5 credits)

Introduction to Animal Science (A1)	AVS 101			3
Intro. Animal Science Laboratory	AVS 102			1
Freshman Seminar AVS	AVS 110			1

Total credits _____

Approved for Graduation
Advisor_____Date: _____

4. Concentration Course Requirements (22 credits)*

	Course	Semester	Grade	Credit
Anatomy & Physiology	AVS 331			3
Anatomy & Physiology Lab	AVS 333			1
Animal Diseases	AVS 332			3
Animal Nutrition	AVS 412			3
Physiology of Reproduction	AVS 472			3
Cell Biology	BIO 341			3

*AVS GPA (minimum 2.0 required)

Maximum 3 credits AVS 491/492

5. Supporting Elective Requirements (11 credits)**

	Course	Semester	Grade	Credit
Animal Management Techniques	AVS 104			2
BUS or ECN				3

^Maximum 9 cr of AVS 399, 491, 492 can be counted towards degree

6. Free Electives (2 cr)

Planning for Academic Success	URI 101			1

7. GenEd courses and Free Electives (max 21 cr)

Courses in this section will be courses fulfilling GenEd outcomes that do not appear in sections 1-5 of this option sheet. Careful selection of these courses will leave space for additional courses in your major or minor area of interest.

THE UNIVERSITY OF RHODE ISLAND

Animal & Veterinary Science - BS
120 Credits Total
Option: Pre-Veterinary

Student: _____
Student ID: _____
Advisor: _____

General Education Guidelines:

General education is 40 credits. Each of the twelve outcomes (A1-D1) must be met by at least 3 credits. A single course may meet more than one outcome, but cannot be double counted towards the 40 credit total. At least one course must be a Grand Challenge (G). No more than twelve credits can have the same course code. General education courses may also be used to meet requirements of the major or minor when appropriate.

Step 2: LIST COURSES THAT MEET GEN ED

General Education Credit Count						
At least 40 credits, no more than 12 credits with the same course code						
Course	**Outcome**	**Credit**		**Course**	**Outcome**	**Credit**
AVS 101*	A1	3		104* or	B1, B4	3
BIO 101*	A1	3		332* or	B1, B2	3
BIO 102*	A1	3				
BIO 103*	A1	1				
BIO 104*	A1	1				
COM 100*	B2	3				
CHM 101* or 103*	A1	3				
or 105*	A1	1				
PHY 111*	A1, B3	3				
PHY 112*	A1, B3	3				
PHY 185*	A1, B3	1				
PHY 186*	A1, B3	1			Total Gen Ed credits	40
MTH 131*	A1, B3	3				

NOTE: BECAUSE MOST COURSES MEET MORE THAN ONE OUTCOME, YOUR OUTCOME AUDIT MIGHT BE COMPLETED BEFORE YOU REACH YOUR 40 CREDITS. HOWEVER, YOU MUST STILL COMPLETE 40 CREDITS OF GENERAL EDUCATION

Advising Notes:

Step 3: LIST COURSE AS EACH OUTCOME IS MET

General Education Outcome Audit	
	Course
KNOWLEDGE	
A1. STEM	AVS 101
A2. Social & Behavioral Sciences	
A3. Humanities	
A4. Arts & Design	
COMPETENCIES	
B1. Write effectively	WRT 104 OR 106
B2. Communicate effectively	COM 100
B3. Mathematical, statistical, or computational strategics	MTH 131
B4. Information literacy	WRT 104 OR 106
RESPONSIBILITIES	
C1. Civic knowledge & responsibilities	
C2. Global responsibilities	
C3. Diversity & Inclusion	
INTEGRATE & APPLY	
D1. Ability to synthesize	
GRAND CHALLENGE	
G. Check that at least one course of your 40 credits is an approved "G" course	
NOTE: COURSES MARKED WITH A * CAN BE USED TO SATISFY MAJOR AND GENERAL EDUCATION	

Effective Fall 2018

B.S. Animal & Veterinary Science- Pre-Vet Option- Effective Fall 2018
Sample 4 Year Plan
College of the Environment and Life Sciences

Freshman Year Fall Semester

Course Code	Description	Cr	
AVS 101,102	Introduction to Animal Science, Lab	4	
BIO 101,103	Principles of Biology I, Lab	4	
MTH 131	Calculus	3	
COM 100	COM Fundamentals	3	
URI 101	Planning for Academic Success	1	
		15	

Freshman Year Spring Semester

Course Code	Description	Cr	
AVS 110	AVS Freshman Seminar	1	
BIO 102,104	Principles of Biology II, Lab	4	
CHM 101, 102	General Chemistry and Lab	4	
WRT 104 OR 106	Writing Gen Ed (B4)	3	
	Concentration or Supporting Elective	3	
		15	

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

Sophomore Year Fall Semester

Course Code	Description	Cr	
AVS 331/333	Anatomy and Physiology Lecture & Lab	4	
CHM 112, 114	General Chemistry II and Lab	4	
PHY 111, 185	Physics I and Lab	4	
	General Education Course	3	
		15	

Sophomore Year Spring Semester

Course Code	Description	Cr	
AVS 332	Animal Diseases	3	
PHY 112, 186	Physics II and Lab	4	
WRT 332 or 334	WRT course	3	
STA 308	Introductory Statistics	4	
	General Education Course	3	
		17	

Year 2 Milestones: Earn 60 credits and a GPA of 2.0 or higher. Meet with your Advisor to dicuss major and experential learning opportunities.

Junior Year Fall Semester

Course Code	Description	Cr	
	Concentration or Supporting Elective	6	
CMB 211	Introductory Microbiology	4	
CHM 227	Organic Chemistry 1	3	
BUS or ECN		3	
		16	

Junior Year Spring Semester

Course Code	Description		
	Concentration or Supporting Elective	3-6	
BIO 352	General Genetics	4	
CHM 228,226	Organic Chemistry 2, Lab	4	
	General Education Course	3	
		14-17	

Year 3 Milestones: Earn 90 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	
AVS 412	Animal Nutrition	3	
BIO 341	Cell Biology	3	
	Concentration or Supporting Electives	6	
	General Education or Free Electives	3	
		15	

Senior Year Spring Semester

Course Code	Description	Cr	
AVS 472	Physiology of Reproduction	3	
CMB 311	Introductory Biochemistry	3	
	Concentration or Supporting Electives	6	
	General Education or Free Electives	3	
		15	

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

Total Credits to Graduate = 120

Effective Fall 2018

THE
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OF RHODE ISLAND

Appendix L

Revised 8/2016

Notice of Change form

Notice of Change for: **AQUACULTURE AND FISHERIES SCIENCE BS**

Date: **3/2/2018**

A. PROGRAM INFORMATION

1. **Name of institution**
   University of Rhode Island

2. **Name of department, division, school or college**

   Department: Fisheries, Animal and Veterinary Science (FAVS)
   College: Environment and Life Sciences (CELS)

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

   Initiation date: September 2018
   First degree date: May 2022

4. **Intended location of the program** University of Rhode Island, Kingston Campus

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

See below

6. **If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.**

See below

7. **Signature of the President**

_____
David M. Dooley

Notice of Change for: **AQUACULTURE AND FISHERIES TECHNOLOGY BS**

Date: **12/14/2017**

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

Changes requested: Change the number of credits required to graduate from 130 to 120 (see below for a breakdown of credits required in each category).

Rationale:

The proposed program is a revision of the Aquaculture and Fisheries Science (previously known as Aquaculture and Fishery Technology, name change approved by CAC on 2/26/18) undergraduate major. This update to the program is needed to:

1) Provide a better fit with the current status and future directions of the field;
2) Accommodate for changes in personnel in FAVS due to retirements and new hires;
3) Better serve the demographics and needs of our students;
4) Accommodate for changes in the General Education program;
4) Facilitate a decrease in time to graduation by providing more flexibility in the curriculum while maintaining rigor; and
5) Facilitate students' ability to graduate with minors and double majors by better alignment with relevant programs.

The revised program:

a) Provides students with a strong foundation in the basic sciences and the specialized knowledge and skills needed to succeed in both professional and academic careers in Aquaculture and Fisheries. This includes an understanding of the importance of physical (geology, hydrology, oceanography), natural (from molecules to ecosystems), and social (cultural, economic, policy, diversity, equity) factors.
b) Illustrates the experiential learning focus of the program (see curriculum map highlighting all the courses that include laboratories, plus the requirement for at least 3 credits of internship or independent project).
c) Fulfills all the requirements needed for the Professional Certification by the American Fisheries Society (see supporting materials and https://fisheries.org/membership/afs-certification/)
d) Seamlessly integrates with a newly proposed Graduate Certificate in Aquaculture and Fisheries at the University of Rhode Island (proposal to be submitted soon).

See next page for changes in credit distribution (breakdown of credits)

Breakdown of credits required in each category and how the compare to the previous program (changes in red)

	Aquaculture & Fisheries Technology	**Aquaculture & Fisheries Science**
General Education	40 cr.	40 cr.
Basic Sciences	28 – 32 cr. BIO101/103, BIO102/104, CHM 103/105 or CHM101/102, CHM112/114 or CHM124/126, MTH111 or MTH131 and an additional 9-12 cr. from approved list.	24 – 27 cr. BIO101/103, BIO102/104, CHM 103/105 or CHM101/102, CHM112/114, ~~CHM124/126~~, MTH103, MTH111, MTH131 or MTH 141, and an additional 9-12 cr to choose from particular categories – one course in physical sciences, one course in ecology/ecosystem science, one course in computational sciences or statistics.
Intro to Professional	10 cr. AFS105G/106, EEC105, NRS100	10 cr. Pre-professional courses (AFS105G/106, EEC105, NRS100)
Concentration (includes experiential learning)	24 cr. 300 or above from approved list Minimum of 18 from AFS	Minimum of 20 cr. 300 or above from approved course codes (AFS, BIO, NRS, OCG, MAF) With a Minimum of 12 from AFS plus Minimum of 3 and maximum of 12 from AFS391/392, AFS491/492
Supporting Electives	30 – 36 from approved list Including 2 Foundational courses (AFS201, AFS202)	Minimum of 25 from suggested course codes; including the 2 required foundational courses (AFS201, AFS202) listed under Professional Concentration in the curriculum sheet
Total	130	120

6. If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.

Note: Since the changes are substantial, a clean version is included here. A version with track changes is also attached to the proposal.

Catalog Description – Aquaculture and Fisheries Science BS

Aquaculture and Fisheries play an essential role in the sustainability and health of our planet by providing food and other services. This major prepares students for professional, technical, academic, or research careers focused on the safe and sustainable production of products and services from aquatic (marine and freshwater) environments. Core values include an emphasis on the intrinsic value of sustainable food production in the context of other ecosystem processes, heterogeneous scales of production (from small farms and fishers that sell directly to consumers to large scale producers), and preserving local cultures and biodiversity while understanding future demands.

The major requires ten credits in introductory professional courses including AFS 105G/106, EEC 105, and NRS 100; and a minimum of 24 credits in basic sciences including BIO 101/103, BIO 102/104, one course in mathematics (MTH103, MTH111, MTH131 or MTH141), one course in the physical sciences (OCG, PHY, GEO), one course in ecology or ecosystem science, and one course in computational sciences or statistics. In addition, the major requires a minimum of 20 credits in concentration courses at the 300 level or above, and 12 credits of the concentration courses must be selected from courses offered by AFS. The additional credits of the concentration may be selected from courses offered in BIO, EEC, MAF, NRS, and OCG. The major also requires a minimum of 3 credits in an internship or a special project. Finally, the program requires a minimum of 25 credits of supporting electives selected from courses in AFS, APG, AVS, BIO, EEC, GEO, MAF, NRS, OCG, and SAF. A total of 120 credits is required for graduation.

Supporting materials (AFS notice of change – curricular changes)

Catalog changes with tracked changes
AFS Revised Curriculum (advising) sheet
AFS Revised Milestones
AFS Curriculum Map
How the AFS program fulfills requirements from American Fisheries Society for professional certification at the Associate level
Support from APG and GSO on using APG and OCG courses as supporting electives

Catalog description

Aquaculture and Fisheries~~iesy~~ ~~Technology~~ Science

Aquaculture and Fisheries play an essential role in the sustainability and health of our planet by providing food and other services. This major prepares students for professional, technical, academic, or research careers focused on the~~-~~ safe and sustainable production of products and services from aquatic (marine and freshwater) environments. Core values include an emphasis on the intrinsic value of sustainable food production in the context of other ecosystem processes, heterogeneous scales of production (from small farms and fishers that sell directly to consumers to large scale producers), and preserving local cultures and biodiversity while understanding future demands. ~~for professional or technical careers in aquaculture or fisheries-oriented occupations. It is sufficiently broad to allow for specialization in either fisheries or aquaculture science and technology. Students who demonstrate superior ability in the basic sciences and wish to continue their professional training can select a course curriculum that will both prepare them for graduate school and provide a broad overview in fisheries and aquaculture science and technology.~~

The major requires ~~a minimum of~~ ten credits in introductory professional courses including~~ NRS 100,~~ AFS 105G/106, EEC 105, and NRS 100; and a minimum of 24 credits in basic sciences including BIO 101/103, BIO 102/104, one course in mathematics (MTH103, MTH111, MTH131 or MTH141), ~~CHM 101/102, CHM 112/114 or CHM 124/126, MTH~~ one course in the physical sciences, one course in ecology or ecosystem science~~111 or MTH 131;~~ , and one course in computational sciences or statistics~~and nine to twelve additional credits in basic science selected from an approved course list in the departments of BIO, CHM, CSC, STA, MTH and PHY~~. In addition, the major requires a minimum 20~~4~~ credits in concentration courses at the 300 level or above, and ~~18~~ 12 credits of the concentration ~~courses~~ must be selected from courses offered by AFS. A minimum of 3 of the concentration credits should be from an internship or a special project. The additional ~~six~~ credits of the concentration may be selected from courses offered in BIO, EEC, MAF, NRS, and OCG~~BIO, AFS, AVS, NRS, MAF, EEC; and by the Graduate School of Oceanography~~. The major also requires a minimum of 3 credits in an internship or a special project. Finally, the program requires a minimum of 25 ~~30-36~~ credits of supporting electives selected from an approved list of courses in ~~the departments of~~ AFS, APG, AVS, BIO, EEC, GEO, MAF, NRS, OCG, and SAF ~~BIO, AFS, AVS, MAF, EEC, NRS; and the Graduate School of Oceanography~~. A total of 120~~30~~ credits is required for graduation.

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:	120
Course Credits Completed:	0

Approved for Graduation:

Advisor: _____ Date: _____

III. PROFESSIONAL CONCENTRATION *(min 30 cr total)* — 0

Course Description:	Course No.	Grade	Cr.	Off:
Foundational Courses *(10 cr that count as supporting electives)*				
Shellfish Aquaculture	AFS 201 (3,1)			*F*
Finfish Aquaculture	AFS 202 (2,1)			*S*
Fisheries Science	AFS 215 (2,1)			*S*
Concentration Courses *(min 20 cr; 12 from AFS)*			0	
Suggested Courses for Aquaculture Focus (choose from):				
Crustacean Aquaculture	AFS 362 (3)			*Alt.S(e)*
Marine Finfish Aquaculture	AFS 432 (3)			*Alt.S(o)*
Salmonid Aquaculture	AFS 486 (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 (3)	AFS 531			*Alt.S(e)*
Ecosystem Based Fisheries Sci. & Mngt	AFS 560 (3)			*Alt.S(o)*
Common courses (choose from):				
Aquaculture Health Management	AFS 300 (3,1)			*F*
Aquaculture and the Environment	AFS 425 (3)			*Alt.F(e)*
Aqua. 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***				

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

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

V. SUPPORTING***(*min 15*) 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

B.S. Aquaculture and Fisheries Science- Effective Fall 2018

Sample 4 Year Plan

College of the Environment and Life Sciences

Freshman Year *Fall* Semester

Course Code	Description	Cr	
*AFS 105G/106	Food from the Sea Lec/ Lab	4	
*BIO 101/103	Principles of Biology I/ Lab	4	
*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	
	*General Education	3	
		15	**0**

Junior Year *Spring* Semester

Course Code	Description	Cr	
	Concentration Course	3	
	Concentration Course	3	
	Supporting Elective	3	
	**Special Projects or Internship	3	
	*General Education or Elective	3	
** could be done in the Summer		**15**	**0**

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

Senior Year *Fall* Semester

Course Code	Description	Cr	
	Concentration Course	3	
	Concentration Course	3	
	Supporting Elective	3	
	Basic Science	3	
	*General Education or Elective	3	
		15	**0**

Senior Year *Spring* Semester

Course Code	Description	Cr	
	Concentration Course	3	
	Supporting Elective	3	
	Supporting Elective	3	
	*General Education	3	
	Elective	3	
		15	**0**

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

Total Credits to Graduate = **120**

Effective Fall 2018

	Aquaculture and Fisheries Science Program Student Learning Outcomes (2018 version):	**AFS105G (A1)**	**AFS106 (lab)**	**AFS132G (A2) (s. elective)**	**EEC105 (A2)**	**NRS100 (A1)**	**BASIC SCIENCES (BIO, CHM, MTH, Phys, Ecol, Stats-Comp)**	**AFS201 (lec, lab)**	**AFS202 (lec, lab)**	**APG, MAF, EEC Supp elec**	**AFS270, 290 (lec, lab)**	**AFS300 (lec, lab)**	**AFS321 (lec, lab)**	**AFS362, 432, 483**	**AFS415 (lec)**	**AFS416 (lab)**	**AFS425, 426, 440**	**AFS433 (lec, lab)**	**AFS486,500,531,581,584,586**	**INTERNSHIPS/IND. PROJ**
#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.	**I**				I	R	R	R			R	R	R	E		E		E	E
#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.	**I**	**I**	I	I					R			R				R			E
#3	Demonstrate the basic technical skills necessary for work in aquaculture and fisheries (e.g. boats, diving, plumbing, system design, scientific method, data collection and analysis).		**I**				R	R	R		R	R	R			E		E	E	E
#4	Create local and global solutions to complex challenges in aquaculture and fisheries.	**I**		I				I	I			R		R	E		E		E	E

bject Area (American Fisheries Society requirements for certificati	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 manag**	**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
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 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)
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)

THE
UNIVERSITY
OF RHODE ISLAND
GRADUATE SCHOOL
OF OCEANOGRAPHY

THINK BIG WE DO

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

MEMORANDUM

TO: Marta Gomez-Chiarri, Chair, Fisheries, Animal and Veterinary Sciences

FROM: David C. Smith, Associate Dean GSO

DATE 23 Feb 2018

SUBJECT: Revision to FAVS majors

The Graduate School of Oceanography supports the revision of bot the Aquaculture and Technology and the Aquaculture and Fisheries Science degree programs. We appreciate your inclusion of OCG courses within the changes.

THE
UNIVERSITY
OF RHODE ISLAND

Appendix M

Revised 8/2016

Notice of Change form

Notice of Change for: Updates to the Undergraduate Program Curriculum

Date: 02/09/2018

A. PROGRAM INFORMATION

1. **Name of institution**
   University of Rhode Island

2. **Name of department, division, school or college**

   Department: Environmental and Natural Resource Economics
   College: College of the Environment and Life Sciences

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

   Initiation date: September 2018
   First degree date: n/a

4. **Intended location of the program**

URI Main Campus, Kingston, Rhode Island

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

Change 1: Currently, we have two degree options: Option 1, Green Markets and Sustainability (GMS, 87% of ENRE majors), and Option 2, Environmental Economics and Management (EEM, 13% of ENRE majors).

For Degree Option 1, Green Markets and Sustainability (GMS) we propose to:

1. Add a lower bound on the MTH requirement to make pre-calculus the minimum required (**MTH 111, MTH 103 or BUS 111**) and retain **MTH 131** (Calc. I) as strongly recommended.
2. Add statistics as a formal requirement:
   - **STA 307, 308, 409 or BUS 210 required**
3. Add **EEC 440**: Cost-Benefit Analysis as a required course in the core concentration.

For Degree Option 2, Environmental Economics and Management (EEM) we propose to:

1. Add intermediate micro (**ECN 323 or ECN 328**) as a core concentration requirement.
2. Add **EEC 440**: Cost-Benefit Analysis as a core concentration requirement.

Rationale: As part of our effort to incorporate a recent External Review of our undergraduate program, our goal is to strengthen our major curriculum. The net effects of these proposed changes are to make our degree options more rigorous in mathematics and statistics, both of which are fundamental to economics. These changes are also intended to make the two options more consistent, with students in both options facing more consistent requirements and experience more courses with other ENRE majors. This should help build a sense of cohesion in our major, and help prepare students for workforce expectations (both of these are noted in the External Review report).

Attached are the curriculum sheets for both options with changes marked in red.

Change 2: The Department of Biological Sciences informed our Department Chair recently that **BIO 105** will not be offered starting Fall 2018. We propose to remove the course from our degree option 1 (GMS) curriculum sheets.

Change 3: The Department of Chemistry informed our Department Chair that **CHM 100** will not be offered. We propose to remove the course from our degree option 1 (GMS) curriculum sheets.

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Attached are the curriculum sheets for both options with changes marked in red.

6. **If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.**

The major is comprised of two options: Green Markets and Sustainability (GMS) and Environmental Economics and Management (EEM). The two options are discussed below.

Option 1: Green Markets and Sustainability (GMS). This option is for students who wish to develop a deep understanding of social and economic systems as they relate to a sustainable environment. This option is designed to provide considerable flexibility so students can focus their studies to meet their professional goals. Twenty-four credits in concentration courses are required at the 300 level or above, with 15 credits in environmental and natural resource economics (EEC), including economics of natural resource management and policy (EEC 310), benefit cost analysis (EEC 440) ~~-~~and a capstone course in environmental economics and policy (EEC 432), three credits in microeconomic theory (ECN 328 or 323), and six credits in other concentration courses selected by students in consultation with their advisors. Up to nine concentration credits may be in economics (ECN) or business (BUS). A minimum of 21 credits in basic and supporting sciences are required, including three credits in mathematics (MTH 111,103, 131 or BUS 111), ~~four credits in~~ introductory statistics (STA 307, 308, 409 or BUS 210), introductory geology (GEO 100 or 103), introductory biology (BIO 101/103~~ or 105~~), and

introductory chemistry (CHM ~~100,~~ 101, or 103). Introductory calculus (MTH 131) is strongly recommended, especially for students who are considering going to graduate school. Supporting sciences can be selected from a broad range of subjects including business (BUS 210 and 212 only), mathematics, statistics, computer science, natural resources science, physics, genetics, plant physiology, biology, ecology, chemistry, geology, or oceanography. An additional 25–27 credits in supporting electives allow the student either to develop a closely related focus area (e.g., green business) or to sample from a broad set of relevant courses.

Option 2: Environmental Economics and Management
(EEM).This option is for students who seek a balanced focus on environmental sciences and environmental economics. The option requires 36 credits of basic sciences, including at least eight credits in general biology (BIO 101/103, 102/104); four credits in general chemistry (CHM 101/102 or 103/105); introductory soil science (NRS 212); four~~three~~ credits in introductory ecology (BIO 262); four credits in introductory geology (GEO 103); three credits in introductory calculus (MTH 131);
and four~~three~~ credits in introductory statistics (STA 308). The 24-credit concentration includes a minimum of 12 concentration credits in environmental and resource economics (listed under EEC), including economics of natural resource management and policy (EEC 310), benefit cost analysis (EEC 440) and a capstone course in
environmental economics and policy (EEC 432), as well as three additional credits in microeconomic theory (ECN 328 or 323)~~six additional credits selected to meet the student's particular interests~~. Students are also required to take a minimum of 12 concentration credits selected from ecology, soils and watersheds, and geosciences. Students choose a minimum of 20 credits in supporting electives and eight credits in free electives.
Green Business. The Department of Environmental and Natural Resource Economics and the College of Business Administration offer a double major in environmental economics and general business. This program is designed for those interested in corporate sustainability, energy efficiency, non-profit management, green marketing, renewable energy, global environmental challenges, environmental policy, and energy finance. Students earn a B.S. in Environmental and Natural Resource Economics from the College of the Environment and Life Sciences and a B.S. in Business Administration from
the College of Business Administration. More details on this program can be found at

7. Signature of the President

_____
David M. Dooley

THE UNIVERSITY OF RHODE ISLAND

Environmental & Natural Resource Economics - B.S.
Option: Environmental Economics and Management
120 Earned Credits Total
web.uri.edu/enre

Student: _____
Student ID: _____
Advisor: _____

General Education Guidelines:

General education is 40 credits. Each of the twelve outcomes (A1-D1) must be met by at least 3 credits. A single course may meet more than one outcome, but cannot be double counted towards the 40 credit total. At least one course must be a Grand Challenge (G). No more than twelve credits can have the same course code. General education courses may also be used to meet requirements of the major or minor when appropriate.

LIST COURSES THAT MEET GENERAL EDUCATION:

General Education Credit Count						
At least 40 credits, no more than 12 credits with the same course code						
Course	**Credit**	**Grade**		**Course**	**Credit**	**Grade**
*NRS100	3					
*BIO101	3					
*BIO103	1					
*BIO102	3					
*BIO104	1					
*CHM101 **or** *CHM103	3					
*GEO103	4					
*MTH131	3					
*EEC105	3					
				Total Gen Ed Credits		

NOTE: BECAUSE MOST COURSES MEET MORE THAN ONE OUTCOME, YOUR OUTCOME AUDIT MIGHT BE COMPLETED BEFORE YOU REACH YOUR 40 CREDITS. HOWEVER, YOU MUST STILL COMPLETE 40 CREDITS OF GENERAL EDUCATION

*course fulfills general education and a major requirement

LIST COURSE AS EACH OUTCOME IS MET:

General Education Outcome Audit	
	Course
KNOWLEDGE	
A1. STEM	*NRS100
A2. Social & Behavioral Sciences	*EEC105
A3. Humanities	
A4. Arts & Design	
COMPETENCIES	
B1. Write effectively	
B2. Communicate effectively	
B3. Mathematical, statistical, or computational strategies	*MTH131
B4. Information literacy	*GEO103
RESPONSIBILITIES	
C1. Civic knowledge & responsibilities	
C2. Global responsibilities	
C3. Diversity & Inclusion	
INTEGRATE & APPLY	
D1. Ability to synthesize	
GRAND CHALLENGE	
G. At least one course of your 40 credits is an approved "G" course	

Transfer out of University College for Academic Success Requirement: Must have completed at least 24 credits with a minimum cumulative 2.0 GPA, and received permission from the University College major advisor.

Advising Notes: _____

THE UNIVERSITY OF RHODE ISLAND

Environmental & Natural Resource Economics - B.S.
Option: Environmental Economics & Management
120 Earned Credits Total

Student: _____
Student ID: _____
Advisor: _____

ABOUT THE BS IN ENVIRONMENTAL & NATURAL RESOURCE ECONOMICS: ENVIRONMENTAL ECONOMICS MANAGEMENT (EEM) OPTION:

Environmental Economics & Management option offers students classes that blend the natural, physical, and economic sciences. The option is recommended for students interested in biodiversity conservation, land and water conservation, natural hazards, and global climate change, and those seeking a career in government agencies and non-governmental organizations dealing with these environmental issues. EEM has a stronger emphasis on the environmental sciences and prepares students to analyze problems of natural resources management by having a broader understanding of relationships between the processes of the physical and biological world, and of the economic systems. Please consult the Environmental & Natural Resource Economics website at: http://web.uri.edu/enre/.

REVIEW YOUR PROGRAM REQUIREMENTS:

INTRO to URI & Professional Courses: (10 credits)			
Course	**Semester**	**Credits**	**Grade**
URI 101		1	
*NRS 100		3	
*EEC 105		3	
EEC 205		3	

WRITING 200+ Level Requirement: (3-4 credits)			
Course	**Semester**	**Credits**	**Grade**
WRT		3 or 4	

BASIC & SUPPORTING SCIENCE (31 Credits)			
Course	**Semester**	**Credits**	**Grade**
*BIO 101		3	
*BIO 103		1	
*BIO 102		3	
*BIO 104		1	
BIO 262		4	
*CHM101/102, **or** *CHM103/105		4	
*GEO 103		4	
NRS 212		4	
*MTH 131		3	
STA 308		4	

FREE ELECTIVES: Courses that are not required by the major do not fulfill general education. Consult with your advisor to determine total needed to meet 120 credit graduation requirement.			
Course	**Semester**	**Credits**	**Grade**

*Course approved for general education

CONCENTRATION Requirement: (24 credits total)			
CONCENTRATION EEC Courses: (12 credits)			
Course	**Semester**	**Credits**	**Grade**
EEC 310		3	
EEC 432		3	
EEC 440		3	
ECN 328 or 323		3	
CONCENTRATION SCIENCE Courses: (12 credits) Credits beyond 12 will count towards Supporting Electives. Choose from the following courses:			
ECOLOGY: NRS 301, 302, 304, 305, 309, 324, 402, 406, 407 **SOILS AND WATERSHED:** NRS 351, 412, 423/425, 424, 426, 450, 452, 461, 471 **GEOSCIENCES:** GEO 305, 404, 482, 483, 484			
Course	**Semester**	**Credits**	**Grade**

SUPPORTING ELECTIVES (20 credits) See list of approved courses. →			
Course	**Semester**	**Credits**	**Grade**

Minimum 2.0 GPA required in major for graduation.
Minimum 2.0 cumulative GPA required for graduation.

Effective: 2017 - 2018

Supporting Electives for Environmental & Natural Resource Economics Effective 2017 - 2018			
Subject	**Code**	**Title**	**Credits**
Africana Studies	AAF 410	Issues in African Development	3
Aquaculture & Fisheries Science	AFS 200+	All courses 200 level and above	
Anthropology	APG 319	Cultural Behavior and Environment	3
	APG/PSY 405	Psychological Anthropology	3
	APG 413	Peoples of the Sea	3
Animal and Veterinary Science	AVS 300+	All courses 300 level and above	
Biology	BIO 200+	All courses 200 level and above	
Business	BUS 200+	All courses 200 level and above	
Chemistry	CHM 200+	All courses 200 level and above	
Cell & Molecular Biology	CMB 211	Introductory Microbiology	4
	CMB 300+	All courses 300 level and above	
Communication Studies	COM 315	Environmental Dimensions of Communication	3
	COM 455	Science & Communication	3
Community Planning	CPL 391	Directed Study in Community Planning	1 to 3
	CPL 400+	All courses 400 level and above	
Computer Science	CSC 200	Computer Problem Solving for Science & Engineering	4
	*CSC 201	Introduction to Computer Programming	4
	CSC 211	Object Oriented Programming	4
	CSC 450	Scientific Computing	4
Economics	ECN 200 +	All courses 200 level and above	
Environmental Economics	EEC 200+	All courses 200 level and above	
Entomology	ENT 300+	All courses 300 level and above	
Environmental Sciences	EVS 300+	All courses 300 level and above	
Geosciences	GEO 210	Landforms: Origins & Evolution	4
	*GEO/EEC/NRS 234G	Introduction to Water Resources	3
	GEO 300+	All courses 300 level and above	
Marine Affairs	MAF 100+	All courses 100 level and above	
Mathematics	MTH 132	Applied Calculus II	3
	*MTH 142	Intermediate Calculus with Analytic Geometry	4
	MTH 215+	All courses 215 and above	
Nutrition & Food Sciences	NFS 400 +	All courses 400 level and above	
Natural Resources Science	NRS 200	Seminar in Natural Resources	1
	NRS 223	Conservation Biology	4
	*NRS/EEC/GEO 234G	Introduction to Water Resources	3
	NRS 300+	All courses 300 level and above	
Oceanography	OCG 300+	All courses 300 level and above	
Philosophy	*PHL 212	Ethics	3
	*PHL 215	Science & Inquiry	3
	*PHL 217	Social Philosophy	3
	PHL 451	Symbolic Logic	3
	*PHL 452	Philosophy of Science	3
	PHL 453	Philosophy of the Social Sciences	3
Plant Sciences	PLS 200	Introduction to Plant Protection	4
	PLS 210	Plant Protection Practicum	2
	PLS 300+	All courses 300 level and above	
Political Science	PSC 211	World Politics	4
	PSC 300+	All courses 300 level and above	
Psychology	PSY 301	Introduction to Experimental Psychology	3
	PSY 302	Applied Methods in Psychological Research	3
	PSY/APG 405	Psychological Anthropology	3
Statistics	STA 400+	All courses 400 level and above	
Sustainability	SUS 300+	All courses 300 level and above	
Writing	*WRT 332	Technical Writing	3

*Courses that meet general education requirements.

**APG310 Topics in Anthropology & COM410 Advanced Topics in Comm. Studies are approved only if topics relevant to major

***CVE300+ and OCE300+ are approved, but may not be accessible to most majors

Effective: 2017 - 2018

B.S. Environmental & Natural Resource Economics
Option: Environmental Economics & Management - Effective Fall 2017
College of the Environment and Life Sciences
SAMPLE Four-Year Plan

Freshman Year *Fall* Semester

Course Code	Description	Cr
URI 101	Planning for Academic Success	1
*EEC 105	Introduction to Resource Economics	3
*NRS 100	Natural Resource Conservation	3
*BIO 101/103	Principles of Biology I/Lab	4
	*General Education	3
		14

Freshman Year *Spring* Semester

Course Code	Description	Cr
EEC 205	Environmental Economics and Policy	3
*GEO 103	Understanding the Earth	4
*BIO 102/104	Principles of Biology II/Lab	4
	*General Education	3-4
	*General Education	3-4
		17-19

Year 1 Milestones: Earn 30 credits with a cumulative gpa of 2.0 or higher. EEC205 (offered spring only). Finalize ENRE option selection (GMS or EEM). Transfer from UC to CELS. Consider a summer internship.

Sophomore Year *Fall* Semester

Course Code	Description	Cr
*MTH 131	Applied Calculus I	3
NRS 212	Introduction to Soil Science	4
BIO 262	Introductory Ecology	4
	*General Education	3-4
	*General Education	3-4
		17-19

Sophomore Year *Spring* Semester

Course Code	Description	Cr
*CHM 101/102 or *CHM103/105	General Chemistry I/Lab, or Introductory Chemistry/Lab	4
STA 308	Introductory Statistics	4
	Supporting Elective	3-4
WRT_____	WRT 200 level or above	3-4
		14-16

Year 2 Milestones: Earn 60 credits with a cumulative gpa of 2.0 or higher. NRS212 (offered fall only). Consider a minor (optional). Meet with faculty advisor to plan jr/sr year courses and discuss internship/research/study opportunities.

Junior Year *Fall* Semester

Course Code	Description	Cr
EEC 310	Economics of Natural Resource Management and Policy	3
EEC 328 or 323	Int. Econ. Theory: Pricing & Distrib., or Intermediate Microeconomics	3
	Concentration Elective	3-4
	Supporting Elective	3-4
	Supporting Elective	3-4
		15-19

Junior Year *Spring* Semester

Course Code	Description	Cr
	Concentration Elective	3-4
	Concentration Elective	3-4
	Free Elective	3-4
	Supporting Elective	3-4
	Supporting Elective	3-4
		15-19

Year 3 Milestones: Earn 90 credits with a cumulative gpa of 2.0 or higher. EEC310 (offered fall only). Meet with faculty advisor to plan senior year courses, discuss internship/research opportunities, and prepare Intent to Graduate Application for fall submission.

Senior Year *Fall* Semester

Course Code	Description	Cr
EEC 440	Benefit Cost Analysis	3
	Concentration Elective	3-4
	Supporting Elective	3-4
	Supporting Elective	3-4
	*General Education	3-4
Total Credits to Graduate = 120		**15-19**

Senior Year *Spring* Semester

Course Code	Description	Cr
EEC 432	Environmental and Resource Economics and Policy	3
	*General Education	3-4
	Free Elective	3-4
	Free Elective	3-4
	Free Elective	3-4
		15-17

Year 4 Milestones: Complete all remaining courses and requirements. EEC432 (offered spring only). Minimum of 120 earned credits with a cumulative gpa of 2.0 or higher; and minimum 2.0 gpa in major concentration courses.

Effective: Fall 2017 - 2018

THE UNIVERSITY OF RHODE ISLAND

Environmental & Natural Resource Economics - B.S.
Option: Green Markets and Sustainability
120 Earned Credits Total
web.uri.edu/enre

Student: _____
Student ID: _____
Advisor: _____

General Education Guidelines:

General education is 40 credits. Each of the twelve outcomes (A1-D1) must be met by at least 3 credits. A single course may meet more than one outcome, but cannot be double counted towards the 40 credit total. At least one course must be a Grand Challenge (G). No more than twelve credits can have the same course code. General education courses may also be used to meet requirements of the major or minor when appropriate.

LIST COURSES THAT MEET GENERAL EDUCATION:

General Education Credit Count						
At least 40 credits, no more than 12 credits with the same course code						
Course	**Credit**	**Grade**		**Course**	**Credit**	**Grade**
*NRS100	3					
*BIO101/103 **or** *BIO105	3 or 4					
*CHM101 or *CHM 103	3					
*GEO100 (C2) **or** *GEO103 (B4)	3 or 4					
*MTH 111 or 131 or BUS 111	3					
*EEC105	3					
				Total Gen Ed Credits		

NOTE: BECAUSE MOST COURSES MEET MORE THAN ONE OUTCOME, YOUR OUTCOME AUDIT MIGHT BE COMPLETED BEFORE YOU REACH YOUR 40 CREDITS. HOWEVER, YOU MUST STILL COMPLETE 40 CREDITS OF GENERAL EDUCATION

*course fulfills general education and a major requirement

LIST COURSE AS EACH OUTCOME IS MET:

General Education Outcome Audit	
	Course
KNOWLEDGE	
A1. STEM	*NRS100
A2. Social & Behavioral Sciences	*EEC105
A3. Humanities	
A4. Arts & Design	
COMPETENCIES	
B1. Write effectively	
B2. Communicate effectively	
B3. Mathematical, statistical, or computational strategies	*MTH _____
B4. Information literacy	
RESPONSIBILITIES	
C1. Civic knowledge & responsibilities	
C2. Global responsibilities	
C3. Diversity & Inclusion	
INTEGRATE & APPLY	
D1. Ability to synthesize	
GRAND CHALLENGE	
G. At least one course of your 40 credits is an approved "G" course	

Transfer out of University College for Academic Success Requirement: Must have completed at least 24 credits with a minimum cumulative 2.0 GPA, and received permission from the University College major advisor.

Advising Notes: _____

THE UNIVERSITY OF RHODE ISLAND

Environmental & Natural Resource Economics - B.S.
Option: Green Markets and Sustainability
120 Earned Credits Total

Student: _____
Student ID: _____
Advisor: _____

ABOUT THE BS IN ENVIRONMENTAL & NATURAL RESOURCE ECONOMICS:
GREEN MARKETS & SUSTAINABILITY OPTION

Green Markets and Sustainability (GMS) option is recommended for students who seek a career in business, governmental and non-governmental organizations dealing with a wide range of environmental topics, including: green business, renewable energy, fisheries, coastal management, sustainable development, and others. Students in this option will study areas such as management of our international fisheries and other marine resources, efficient use of land and water resources, and how green markets can protect the environment while also helping to alleviate global poverty. It is also recommended for students planning to do graduate studies in environmental economics, or go to law school with an interest in environmental law or international disputes involving natural resources. The GMS option has a stronger focus on environmental economics than EEM, and at the same time allows considerable flexibility for students to sample broadly from courses across the University or to develop a related focus area (e.g., green business). Please consult the Environmental & Natural Resource Economics website at: http://web.uri.edu/enre/.

REVIEW YOUR PROGRAM REQUIREMENTS:

Intro. to URI & Professional Courses: (10 credits)			
Course	**Semester**	**Credits**	**Grade**
URI 101		1	
*NRS 100		3	
*EEC 105		3	
EEC 205		3	

WRITING 200+ Level Requirement: (3-4 credits)			
Course	**Semester**	**Credits**	**Grade**
WRT		3 or 4	

BASIC & SUPPORTING SCIENCE (21-23 credits)			
Required Basic & Supporting Science Courses (12-14 cr.)			
Course	**Semester**	**Credits**	**Grade**
*BIO 101/103 (4)~~; or *BIO 105 (3)~~		3 or 4	
~~CHM 100; or~~ *CHM 101~~;~~ **or** *CHM 103		3	
*GEO 100 (3); **or** *GEO 103 (4)		3 or 4	
*MTH 131		3	
STA 307, 308, 409 or BUS 210			
*Note: *MTH131 is strongly recommended. May substitute w/MTH 111 or BUS111.*			
Remaining Basic & Supporting Science credits (7-9 cr.): Choose courses from these categories: AFS, AVS, BIO, BUS (210 & 212 only), CHM, CMB, CSC, GEO, MTH, NRS, OCG, PHY, PLS, and STA.			
Course	**Semester**	**Credits**	**Grade**

*Course approved for general education

Minimum 2.0 GPA required in major for graduation.
Minimum 2.0 cumulative GPA required for graduation.

CONCENTRATION Requirement: (24 credits) 300 level or above; minimum 15 credits in EEC; up to 9 credits in ECN or BUS.			
Course	**Semester**	**Credits**	**Grade**
ECN 323; **or** ECN 328		3	
EEC 310		3	
EEC 432		3	
EEC 440		3	
EEC		3	
EEC		3	
EEC **or** BUS **or** ECN _____		3	
EEC **or** BUS **or** ECN _____		3	

Supporting Electives (27 credits) **See list of approved courses. →**			
Course	**Semester**	**Credits**	**Grade**

Free Electives: courses that are not required by the major and do not fulfill general education. Consult with your advisor to determine total needed to meet 120 credit graduation req.			
Course	**Semester**	**Credits**	**Grade**

Effective: 2017 - 2018

Supporting Electives for Environmental & Natural Resource Economics Effective 2017 - 2018			
Subject	**Code**	**Title**	**Credits**
Africana Studies	AAF 410	Issues in African Development	3
Aquaculture & Fisheries Science	AFS 200+	All courses 200 level and above	
Anthropology	APG 319	Cultural Behavior and Environment	3
	APG/PSY 405	Psychological Anthropology	3
	APG 413	Peoples of the Sea	3
Animal and Veterinary Science	AVS 300+	All courses 300 level and above	
Biology	BIO 200+	All courses 200 level and above	
Business	BUS 200+	All courses 200 level and above	
Chemistry	CHM 200+	All courses 200 level and above	
Cell & Molecular Biology	CMB 211	Introductory Microbiology	4
	CMB 300+	All courses 300 level and above	
Communication Studies	COM 315	Environmental Dimensions of Communication	3
	COM 455	Science & Communication	3
Community Planning	CPL 391	Directed Study in Community Planning	1 to 3
	CPL 400+	All courses 400 level and above	
Computer Science	CSC 200	Computer Problem Solving for Science & Engineering	4
	*CSC 201	Introduction to Computer Programming	4
	CSC 211	Object Oriented Programming	4
	CSC 450	Scientific Computing	4
Economics	ECN 200 +	All courses 200 level and above	
Environmental Economics	EEC 200+	All courses 200 level and above	
Entomology	ENT 300+	All courses 300 level and above	
Environmental Sciences	EVS 300+	All courses 300 level and above	
Geosciences	GEO 210	Landforms: Origins & Evolution	4
	*GEO/EEC/NRS 234G	Introduction to Water Resources	3
	GEO 300+	All courses 300 level and above	
Marine Affairs	MAF 100+	All courses 100 level and above	
Mathematics	MTH 132	Applied Calculus II	3
	*MTH 142	Intermediate Calculus with Analytic Geometry	4
	MTH 215+	All courses 215 and above	
Nutrition & Food Sciences	NFS 400 +	All courses 400 level and above	
Natural Resources Science	NRS 200	Seminar in Natural Resources	1
	NRS 223	Conservation Biology	4
	*NRS/EEC/GEO 234G	Introduction to Water Resources	3
	NRS 300+	All courses 300 level and above	
Oceanography	OCG 300+	All courses 300 level and above	
Philosophy	*PHL 212	Ethics	3
	*PHL 215	Science & Inquiry	3
	*PHL 217	Social Philosophy	3
	PHL 451	Symbolic Logic	3
	*PHL 452G	Philosophy of Science	3
	PHL 453	Philosophy of the Social Sciences	3
Plant Sciences	PLS 200	Introduction to Plant Protection	4
	PLS 210	Plant Protection Practicum	2
	PLS 300+	All courses 300 level and above	
Political Science	PSC 211	World Politics	4
	PSC 300+	All courses 300 level and above	
Psychology	PSY 301	Introduction to Experimental Psychology	3
	PSY 302	Applied Methods in Psychological Research	3
	PSY/APG 405	Psychological Anthropology	3
Statistics	STA 400+	All courses 400 level and above	
Sustainability	SUS 300+	All courses 300 level and above	
Writing	*WRT 332	Technical Writing	3

*Courses that meet general education requirements.

**APG310 Topics in Anthropology & COM410 Advanced Topics in Communication Studies are approved only if topics relevant to major

**CVE300+ and OCE300+ are approved, but may not be accessible to most majors

B.S. Environmental & Natural Resource Economics
Option: Green Markets & Sustainability - Effective Fall 2017
College of the Environment and Life Sciences
SAMPLE Four-Year Plan

Freshman Year *Fall* Semester

Course Code	Description	Cr
*BIO 101/103 ~~or *BIO 105~~	Principles of Biology I/Lab **or** Biology for Daily Life w/Lab	3-4
*EEC 105	Introduction to Resource Economics	3
*NRS 100	Natural Resource Conservation	3
URI 101	Planning for Academic Success	1
	*General Education	3
	*General Education	3
		16-17

Freshman Year *Spring* Semester

Course Code	Description	Cr
*MTH 111, 131 or BUS 111 or *131	Precalculus, Applied Calculus or Business Analysis and Applications (based on placement)	3
*GEO 100 or *GEO 103	Environmental Geology or Understanding the Earth	3-4
EEC 205	Environmental Economics and Policy	3
	*General Education	3
	*General Education	3
		15-16

Year 1 Milestones: Earn 30 credits with a cumulative gpa of 2.0 or higher. EEC205 (offered spring only). Finalize ENRE option selection (GMS or EEM). Transfer from UC to CELS. Consider a summer internship.

Sophomore Year *Fall* Semester

Course Code	Description	Cr
EEC 310	Ecn. of Natural Resource Mgt. & Policy	3
ECN 328, or ECN323	Int. Econ. Theory: Pricing & Distrib., or Intermediate Microeconomics	3
*CHM 101, or *CHM103	General Chemistry, or Intro to Chemistry	3
	Supporting Science Elective	3-4
	*General Education	3-4
		15-17

Sophomore Year *Spring* Semester

Course Code	Description	Cr
	Concentration Elective	3-4
STA 307, 308, 409 or BUS 210	Supporting Science Elective	3-4
	*General Education	3-4
	*General Education	3-4
WRT_____	WRT 200 level or above	3-4
		15-19

Year 2 Milestones: Earn 60 credits with a cumulative gpa of 2.0 or higher. EEC310 (offered fall only). Consider a minor (optional). Meet with faculty advisor to plan jr/sr year courses and discuss internship/research/study abroad opportunities.

Junior Year *Fall* Semester

Course Code	Description	Cr
EEC 440	Benefit Cost Analysis	3
	Concentration Elective	3-4
	Supporting Elective	3-4
	Supporting Elective	3-4
	*General Education	3-4
		15-19

Junior Year *Spring* Semester

Course Code	Description	Cr
	Concentration Elective	3-4
	Concentration Elective	3-4
	Supporting Elective	3-4
	Supporting Elective	3-4
	*General Education	3-4
		15-19

Year 3 Milestones: Earn 90 credits with a cumulative gpa of 2.0 or higher. Meet with faculty advisor to plan senior year courses, discuss internship/research opportunities, and prepare Intent to Graduate Application for fall submission.

Senior Year *Fall* Semester

Course Code	Description	Cr
	Supporting Science Elective	3-4
	Supporting Elective	3-4
	Supporting Elective	3-4
	Free Elective	3-4
	Free Elective	3-4
Total Credits to Graduate = 120		**15-19**

Senior Year *Spring* Semester

Course Code	Description	Cr
EEC 432	Environmental and Resource Economics and Policy	3
	Supporting Elective	3-4
	Supporting Elective	3-4
	Supporting Elective	3-4
	*General Education	3-4
		15-19

Year 4 Milestones: Complete all remaining courses and requirements. EEC432 (offered spring only). Minimum of 120 earned credits with a cumulative gpa of 2.0 or higher; and minimum 2.0 gpa in major concentration courses.

Effective: 2017 - 2018

THE
UNIVERSITY
OF RHODE ISLAND

Appendix N

Revised 8/2016

NOTICE OF CHANGE FORM

Notice of Change for: Wildlife and Conservation Biology

Date: 2-22-18

A. PROGRAM INFORMATION

1. **Name of institution**
   University of Rhode Island

2. **Name of department, division, school or college**

   Department: CELS
   College: Natural Resources Science

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

   Initiation date: Fall 2018
   First degree date: NA

4. **Intended location of the program:**
   Kingston campus

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

6. **If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.**

We want to make the following changes to the catalog for 2018/2019

1) **Change**: Correct a math calculation errors in the minimum number of concentration credits from 23 down to 22 credits, and alter language for the total number of credits needed in concentration and supporting electives.

   Rationale: A math error in prior catalogs (i.e., 2014-2016) inadvertently listed NRS 407 as a 4 credit course (it is a 3-credit course). Therefore we need to correct this error, as a student could potential take all needed concentration courses and accumulate only 22 credits. We suggest changing the wording in the catalog to state that a student must take "at least 22 credits" of concentration courses. We also suggest altering the wording for supporting electives to state that a student must take "at least 24 credits" of supporting electives.

Thus, by default a student must take at least 46 credits of concentration and supporting electives with this change. These changes reflect similar language to the Environmental Science and Management major.

2) **Change**: Allow student to take either CHM 103/105 or CHM 101/102.

   Rationale: We want Wildlife and Conservation Biology majors to take CHM 103/105 and CHM 124/126. Some students, however take CHM 102/102 before meeting with an advisor or when transferring in. Because the CHM department allows students to take either CHM 103/105 or CHM 101/102 as a prerequisite for CHM 124/126, this change will satisfy the CHM department guidelines and match current guidelines for Environmental Science and Management majors. We propose to list this change in the catalog, but not on our checksheet in maximize the number of students taking CHM 103/105. This change will mean that a curriculum modification will not be necessary for students who take CHM 101/102.

3) **Change**: Delete the minimum grade requirement of C or better for NRS 223 to transfer from University College to CELS.

   Rationale: Although listed in the current catalog, this change was never approved by Faculty Senate, thus is an error. Also in addition, not all students have taken NRS 223 by the time they have completed 30 credits, therefore this in an unnecessary roadblock to transfer from UC to CELS. The NRS faculty do feel it is important to retain a minimum grade for other introductory courses (i.e., intro BIOs and NRS 100).

Existing catalog language:

Wildlife and Conservation Biology:

The major in wildlife and conservation biology, offered through the Department of Natural Resources Science (NRS), prepares students for professional careers in the public and private sectors of wildlife biology. In addition, the major provides a solid background for graduate study. Wildlife biologists are professionals concerned with the scientific management of the earth's wildlife species and their habitats. They work in the areas of preservation, conservation, and management of wildlife species. Wildlife majors meet the educational requirements for state and federal employment in the wildlife profession, and can apply to become Certified Wildlife Biologists (CWBs) who are recognized by The Wildlife Society.

The major requires professional courses (19 credits) including introductory ecology (BIO 262; 4 credits), introduction to resource economics (EEC 105; 3 credits), natural resource conservation (NRS 100; 3 credits), a seminar in natural resources (NRS 200; 1 credit), introductory soil science (NRS 212; 4 credits), and conservation biology (NRS 223; 4 credits). Basic science requirements (22–23 credits) include eight credits of biological sciences (BIO 101/103 & 102/104); eight credits of introductory and organic chemistry (CHM 103/105 & 124/126); three credits applied calculus (MTH 131); and three to four credits of statistics (STA 308 or 409). Required concentration courses (23–25 credits) include principles of wildlife ecology and management (NRS 305; 3 credits); wildlife field techniques (NRS 309; 3 credits); field botany and taxonomy (BIO 323; 4 credits); wetland wildlife

(NRS 406; 4 credits) or endangered species conservation (NRS 407; 3 credits); and 9-11 additional credits from an approved list of concentration courses that are recommended to include either field ornithology (NRS 304, 3 credits), mammalogy (NRS 324, 4 credits), vertebrate biology (BIO 366, 3 credits), herpetology (NRS 417, 4 credits), animal behavior (BIO 467, 3 credits), or wildlife biometrics (NRS 402, 3 credits). Supporting electives (24-26 credits) must be selected from the approved list or from concentration electives or from other 300 or 400 level natural resources science courses. Students may complete specific course work to apply to become a certified wildlife biologist that includes the following supporting electives: three credits in botany; six credits in zoology; six credits in resources policy; and six credits in communications. Up to 12 credits of experiential learning courses may be taken. A maximum of 10 credits of experiential learning courses may be taken toward satisfying concentration credit (letter grade courses only) and up to 12 credits of experiential learning courses may be used as supporting electives (letter grade or S/U courses). Concentration and supporting elective courses must total at least 49 credits. At least 12 credits of natural resources science courses must be completed in concentration and at least 6 more in supporting electives. A total of 120 credits is required for graduation.

In order to transfer from University College for Academic Success to the College of the Environment and Life Sciences as a Wildlife and Conservation Biology major (or be coded as such in the College of the Environment and Life Sciences), a student must have earned 30 credits including BIO 101, 103, 102, 104 with grades of C or better; NRS 100, 223 with a grade of C or better.

Proposed Catalog Language:

The major in wildlife and conservation biology, offered through the Department of Natural Resources Science (NRS), prepares students for professional careers in the public and private sectors of wildlife biology. In addition, the major provides a solid background for graduate study. Wildlife biologists are professionals concerned with the scientific management of the earth's wildlife species and their habitats. They work in the areas of preservation, conservation, and management of wildlife species. Wildlife majors meet the educational requirements for state and federal employment in the wildlife profession, and can apply to become Certified Wildlife Biologists (CWBs) who are recognized by The Wildlife Society.

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learning courses may be used as supporting electives (letter grade or S/U courses). ~~Concentration and supporting elective courses must total at least 49 credits.~~ At least 12 credits of natural resources science courses must be completed in concentration and at least 6 more in supporting electives. A total of 120 credits is required for graduation.

In order to transfer from University College for Academic Success to the College of the Environment and Life Sciences as a Wildlife and Conservation Biology major (or be coded as such in the College of the Environment and Life Sciences), a student must have earned 30 credits including BIO 101, 103, 102, 104; and NRS 100 ~~with grades of C or better; NRS 100, 223~~ with a grade of C or better.

7. Signature of the President

David M. Dooley

Wildlife and Conservation Biology:

The major in wildlife and conservation biology, offered through the Department of Natural Resources Science (NRS), prepares students for professional careers in the public and private sectors of wildlife biology. In addition, the major provides a solid background for graduate study. Wildlife biologists are professionals concerned with the scientific management of the earth's wildlife species and their habitats. They work in the areas of preservation, conservation, and management of wildlife species. Wildlife majors meet the educational requirements for state and federal employment in the wildlife profession, and can apply to become Certified Wildlife Biologists (CWBs) who are recognized by The Wildlife Society.

The major requires professional courses (19 credits) including introductory ecology (BIO 262; 4 credits), introduction to resource economics (EEC 105; 3 credits), natural resource conservation (NRS 100; 3 credits), a seminar in natural resources (NRS 200; 1 credit), introductory soil science (NRS 212; 4 credits), and conservation biology (NRS 223; 4 credits). Basic science requirements (22-23 credits) include eight credits of biological sciences (BIO 101/103 & 102/104); foureight credits of introductory chemistry (CHM 103/105 or CHM 101/102) and four credits of organic chemistry (CHM 103/105 or CHM 101/102 & 124/126); three credits applied calculus (MTH 131); and three to four credits of statistics (STA 308 or 409). At least 22 credits of Required concentration courses must be taken(23-25 credits) including principles of wildlife ecology and management (NRS 305; 3 credits); wildlife field techniques (NRS 309; 3 credits); field botany and taxonomy (BIO 323; 4 credits); wetland wildlife (NRS 406; 4 credits) or endangered species conservation (NRS 407; 3 credits); and 9-11 additional credits from an approved list of concentration courses that are recommended to include either field ornithology (NRS 304, 3 credits), mammalogy (NRS 324, 4 credits), vertebrate biology (BIO 366, 3 credits), herpetology (NRS 417, 4 credits), animal behavior (BIO 467, 3 credits), or wildlife biometrics (NRS 402, 3 credits). At least 24 credits of sSupporting electives (24-26 credits) must be selected from the approved list or from concentration electives or from other 300 or 400 level natural resources science courses. Students may complete specific course work to apply to become a certified wildlife biologist that includes the following supporting electives: three credits in botany; six credits in zoology; six credits in resources policy; and six credits in communications. Up to 12 credits of experiential learning courses may be taken. A maximum of 10 credits of experiential learning courses may be taken toward satisfying concentration credit (letter grade courses only) and up to 12 credits of experiential learning courses may be used as supporting electives (letter grade or S/U courses). Concentration and supporting elective courses must total at least 489 credits. At least 12 credits of natural resources science courses must be completed in concentration and at least 6 more in supporting electives. A total of 120 credits is required for graduation.

In order to transfer from University College for Academic Success to the College of the Environment and Life Sciences as a Wildlife and Conservation Biology major (or be coded as such in the College of the Environment and Life Sciences), a student must have earned 30 credits including BIO 101, 103, 102, 104, and NRS 100 with grades of C or better~~; NRS 100, 223 with a grade of C or better~~.

To: Dr. Rebecca Brown, CELS Curriculum Affairs Committee

From: Dr. Art Gold, Chair NRS, and Dr. Peter Paton

Subject: Corrections and changes to Wildlife and Conservation Biology Catalog listing for fall 2018

Date: 20 February 2018

We want to make the following changes to the catalog for 2018/2019

1) **Change**: Correct a math calculation errors in the minimum number of concentration credits from 23 down to 22 credits, and alter language for the total number of credits needed in concentration and supporting electives.

   Rationale: A math error in prior catalogs (i.e., 2014-2016) inadvertently listed NRS 407 as a 4 credit course (it is a 3-credit course). Therefore we need to correct this error, as a student could potential take all needed concentration courses and accumulate only 22 credits. We suggest changing the wording in the catalog to state that a student must take "at least 22 credits" of concentration courses. We also suggest altering the wording for supporting electives to state that a student must take "at least 24 credits" of supporting electives. Thus, by default a student must take at least 46 credits of concentration and supporting electives with this change. These changes reflect similar language to the Environmental Science and Management major.

2) **Change**: Allow student to take either CHM 103/105 or CHM 101/102.

   Rationale: We want Wildlife and Conservation Biology majors to take CHM 103/105 and CHM 124/126. Some students, however take CHM 101/102 before meeting with an advisor or when transferring in. Because the CHM department allows students to take either CHM 103/105 or CHM 101/102 as a prerequisite for CHM 124/126, this change will conform the CHM department guidelines and match current guidelines for Environmental Science and Management majors.

EL_WCB_BS
120 Earned Credits Total

Student ID: _____
Advisor: _____

ABOUT THE BS in WILDLIFE & CONSERVATION BIOLOGY:

Students enrolled in the Wildlife & Conservation Biology major study a combination of the natural sciences and principles of managing wildlife populations and their habitats. This major is one of very few in the United States that fulfills the educational requirements for certification as an Associate Wildlife Biologist by The Wildlife Society, the international organization for professionals in the wildlife field. It also provides an excellent foundation for graduate school. The URI Student Chapter of The Wildlife Society is heavily involved with career-related activities. web.uri.edu/nrs/wildlife-and-conservation-biology/.

REVIEW YOUR PROGRAM REQUIREMENTS

Intro to URI & NRS (2 credits)

Course	Semester	Credits	Grade
URI 101		1	
NRS 101		1	

Intro. Professional Courses (19 credits)

Course	Semester	Credits	Grade
BIO 262		4	
*EEC 105		3	
*NRS 100		3	
NRS 200		1	
NRS 212		4	
NRS 223		4	

Basic Sciences (22-23 credits)

Course	Semester	Credits	Grade
*BIO 101		3	
*BIO 103		1	
*BIO 102		3	
*BIO 104		1	
*CHM 103		3	
CHM 105		1	
CHM 124		3	
CHM 126		1	
*MTH 131		3	
STA 308 (4) **Or** STA 409 (3)		3-4	

Free Electives

Courses not required by the major & do not fulfill gen eds. Consult w. your advisor to determine total needed to meet 120 credit graduation requirement.

Course	Semester	Credits	Grade

Concentration Courses (at least 22 credits) Must include at least 12 credits from NRS

Required Concentration (13 - 14 credits)

Course	Semester	Credits	Grade
NRS 305		3	
NRS 309		3	
NRS 406 (4) or NRS 407 (3)		3-4	
BIO 323		4	

Additional Concentration Courses (9 -11 credits)
****See approved Concentration Course List***

Course	Semester	Credits	Grade

Supporting Electives (at least 24 credits)
Must include at least 6 credits from NRS.
****See approved Supporting Elective list**

Courses may be selected from **Concentration courses** (see approved list) or from **Supporting Electives** (see approved list). Students interested in a career as a Wildlife Biologist with the federal government should include 3 credits of botany. Students interested in becoming a Certified Wildlife Biologist should include 3 credits in botany, 6 credits in zoology, 6 credits in resources policy or planning, and 6 credits in communication. Up to 12 credits of experiential learning courses may be taken. A maximum of 10 credits of exp. learning courses may be used for Concentration credit (letter grade only) and up to 12 credits of exp. learning courses may be used for Suppt. Electives (Letter Grade or S/U). Senior Colloquium (NRS 480, 2 cr.) is strongly recommended.

Course	Semester	Credits	Grade

***Courses approved for general education.**

Minimum 2.0 cumulative GPA required in major for graduation.
Minimum overall 2.0 cumulative GPA required for graduation.

Effective: 2017 - 2018

B.S. Wildlife & Conservation Biology - Effective Fall 2017

College of the Environment and Life Sciences

Approved Concentration Courses (9 - 11 credits)		
Course (credits)	If seeking federal wildlife biologist (GS-486) job	If seeking TWS Wildlife Biologist Certification
NRS 304 Field Ornithology (3)	X[1]	X[1]
NRS 324 Mammalogy (4)	X[1]	X[1]
NRS 401: Foundations in Restoration Ecology (4)		
NRS 402: Wildlife Biometrics (3)		X[2]
NRS 403: Wildlife Biometrics Field Investigations (1)		
NRS 406: Wetland Wildlife Management (4)		
NRS 407: Endangered Species Conservation (3)		
NRS 409 Concepts in GIS and Remote Sensing (4)		
NRS 410: Fundamentals of GIS (3)		
NRS 415: Remote Sensing of the Environment (3)		
NRS 417 Herpetology (4)	X[1]	X[1]
NRS 419: Field experience in Herpetology (1)		
NRS 491/492: NRS special projects (1-3) [3]		
NRS 497 Cooperative Internship (6 or 12) [3]		
NRS 423: Wetland Ecology (4)		
NRS 475: Coral reef Conservation (3)		
NRS 516 Remote Sensing in Natural Resources Mapping (3)		X[2]
NRS 520: Quantitative Tech. in Natural Resource Research (3)		X[2]
NRS 522 Advanced GIS Analysis Of Environmental Data (3)		X[2]
NRS 533: Landscape Pattern And Change (3)		
BIO 366: Vertebrate Biology (3)	X[1]	X[1]
BIO 455: Marine Ecology (3)		
BIO 467 Animal Behavior (3)	X[1]	X[1]
BIO 480: Community Ecology (3)		
BIO 485: Salt Marsh Ecology (4)		
*CSC 201: Introduction to Computer Programming (4) *B3*		X[2]
*MTH 141: Introductory Calculus With Analytic Geometry (4) *A1,B3*		X[2]

[1] Select two of these five courses

[2] Select one of these six courses (NRS 402 recommended)

[3] Maximum of 10 credits of experiential learning courses (letter grade courses only) can count for concentration credits

Note: Courses marked with an asterisk (*) can be used to satisfy major and general education requirements.

THE UNIVERSITY OF RHODE ISLAND

Wildlife and Conservation Biology
EL_WCB_BS
120 Credits Total
web.uri.edu/nrs/

Student: _____
Student ID: _____
Advisor: _____

General Education Guidelines: General education is 40 credits. Each of the twelve outcomes (A1-D1) must be met by at least 3 single course may meet more than one outcome, but cannot be double counted towards the 40 credit total. At least one course mus Grand Challenge (G). No more than twelve credits can have the same course code (note- HPR courses may have more than 12 cr General education courses may also be used to meet requirements of the major or minor when appropriate.

LIST COURSES THAT MEET GENERAL EDUCATION:

General Education Credit Count						
At least 40 credits, no more than 12 credits with the same course code						
Course	**Credit**	**Grade**		**Course**	**Credit**	**Grade**
*NRS100	3					
*BIO101	3					
*BIO103	1					
*BIO102	3					
*BIO104	1					
*CHM103	3					
*MTH131	3					
*EEC105	3					
				Total Gen Ed Credits		

NOTE: BECAUSE MOST COURSES MEET MORE THAN ONE OUTCOME, YOUR OUTCOME AUDIT MIGHT BE COMPLETED BEFORE YOU REACH YOUR 40 CREDITS. HOWEVER, YOU MUST STILL COMPLETE 40 CREDITS OF GENERAL EDUCATION

*course fulfills general education and a major requirement

LIST COURSE AS EACH OUTCOME IS MET:

General Education Outcome Audit	Co
KNOWLEDGE	
A1. STEM	*NR
A2. Social & Behavioral Sciences	*EE
A3. Humanities	
A4. Arts & Design	
COMPETENCIES	
B1. Write effectively	
B2. Communicate effectively	
B3. Mathematical, statistical, or computational strategies	*MT
B4. Information literacy	
RESPONSIBILITIES	
C1. Civic knowledge & responsibilities	
C2. Global responsibilities	
C3. Diversity & Inclusion	
INTEGRATE & APPLY	
D1. Ability to synthesize	
GRAND CHALLENGE	
G. At least one course of your 40 credits is an approved "G" course (NRS 234G recommended)	

Transfer out of University College for Academic Success Requirement: Must have completed at least 30 credits with a minim cumulative 2.0 GPA, as well as a grade of C or better in BIO 101, 102, 103, 104, and NRS 100.

Advising Notes: _____

_____
_____
_____
_____
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Effective: 2017 - 2018

credits. A
st be a
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urse
S100
C105
H131

um

B.S. Wildlife & Conservation Biology - Effective Fall 2017
College of the Environment and Life Sciences

WILDLIFE & CONSERVATION BIOLOGY APPROVED SUPPORTING ELECTIVES :

At least 24 credits taken from the following categories, of which **at least 6 credits** must be NRS courses, based on certification guidelines established by The Wildlife Society and federal government. Approved courses may change with availability or with approval of your advisor.

Botany (3 credits)[1,2]
NRS 301 Forest Science (3)
NRS 423 Wetland Ecology (4)
NRS 425 Wetlands Field Investigations (1)
NRS 445 Invasive Species (4)
NRS 485 Salt Marsh Ecology (4)
BIO 311 Plant Structure & Development (4)
BIO 321 Plant Diversity (4)
BIO 346 Plant Physiology (3)
BIO 352 General Genetics (4)
BIO 365 Biology of Algae (4)
BIO 418 Ecology of Marine Plants (4)
BIO 454 Genetics Laboratory (3)
Zoology (6 credits)[2]
NRS 304 Field Ornithology (3)
NRS 324 Mammalogy (4)
NRS 417 Herpetology (4)
NRS 419 Field Experience in Herpetology (1)
NRS 505 Biology & Man.Migratory Birds (2)
NRS 534 Ecol. Fragmented Landscapes (2)
NRS 538 Physiological Ecology (3)
BIO 201 General Animal Physiology (3)
BIO 272 Intro Evolution (4)
BIO 286 Humans, Insects, and Disease (3)
BIO 302 Animal Development (4)
BIO 354 Invert. Zoology (4)
BIO 355 Marine Invert. of Southern N.E. (3)
Experiential Learning Courses Up to 12 credits of Experiential Learning Courses may be taken. A maximum of 10 credits of exp. learning courses may be used for concentration credit (letter grade only) and up to 12 credits of exp. learning courses may be used as supporting lectives (letter grade or S/U)
NRS 395 Research Apprenticeship (1-3) **S/U only**
NRS 397 Internship (1-6) **S/U only**
NRS 491/492: NRS special projects (1-3)
NRS 495 Advanced Apprenticeship (3) **S/U only**
NRS 497 Cooperative Internship (6 or 12)
NRS 498 Teaching Practicum (1-3) **S/U only**

Resource Policy, Administration, or Land Use Planning (3 credits)[2]
CPL 434 Intro. to Environmental Law (3)
*MAF 100 Human Use Marine Environment (3) *A2, C1*
MAF 120 New England & The Sea (3)
*MAF 220 Intro. Marine & Coastal Law (3) *A2, C1*
MAF 312 Politics of the Ocean (3)
MAF 461 Coastal Zone Management (3)
MAF 471 Island Ecosystem Management (3)
MAF 484 Env. Anal. & Policy Coastal Mgt. (3)
*NRS/GEO/EEC 234G Introduction to Water Resources (3) *A1*
*NRS 300 Issues in Global Sustain.Dev. (3) *C2, A2*
NRS 401 Foundations in Restoration Ecology (4)
NRS 424 Wetlands & Land Use (4)
NRS 450 Soil Conservation & Land Use (3)
Communications (6 credits)[2]
*JOR 110 Introduction to Mass Media (3) *A3, C1*
JOR 220 Media Writing (3)
JOR/PRS 340 Public Relations (3)
COM 202 Public Speaking (3)
COM 208 Argumentation and Debate (3)
COM 210 Persuasion: The Rhetoric of Influ. (3)
COM 251 Small Group Communication (3)
COM 310 Topics in Communication (3)
*WRT 201 Argument. & Persuasive Texts (3) *B1, B4*
WRT 235 Writing in Electronic Env. (4)
*WRT 332 Technical Writing (3) *B1, B2*
*WRT 334 Science Writing (3) *B1, B2*
WRT 533 Grad. Writing in Life Sciences (3)

[1] Select if considering federal biologist (GS-486) position

[2] Select courses from these lists (Policy, Zoology, Communications if considering TWS Wildlife Certification

Note: Courses marked with an asterisk (*) can be used to satsify major and general education requirements.

Effective: 2017 - 2018

B.S. Wildlife & Conservation Biology - Effective Fall 2018

College of the Environment and Life Sciences

SAMPLE Four-Year Plan

Freshman Year *Fall* Semester

Course Code	Description	Cr
*NRS 100	Natural Resource Conservation	3
NRS 101	Freshman Inquiry into NRS	1
URI 101	Planning for Academic Success	1
*BIO 101/103	Principles of Biology I/ Lab	4
*MTH103, 111, or 131	Applied Precalculus, Precalculus, or Applied Calculus (based on placement)	3
	*General Education Course	3-4
		15-16

Freshman Year *Spring* Semester

Course Code	Description	Cr
NRS 223	Conservation Biology	4
*BIO 102/104	Principles of Biology II/ Lab	4
*CHM 103/105	Introductory Chemistry/ Lab	4
*MTH 131, or *General Ed.	Applied Calculus, or General Education Course	3-4
		15-16

Note: MTH131 is required for WCB majors. Math placement determines if a prerequisite is needed (MTH103 or 111).

Year 1 Milestones: Complete 30 credits with a cumulative gpa of 2.0 or higher. Transfer from UC to CELS. NRS100 & NRS223 (offered fall and spring). Grades of C or higher required in BIO101, 102, 103, 104, NRS100, 223. Consider a summer internship.

Sophomore Year *Fall* Semester

Course Code	Description	Cr
NRS 200	Seminar in Natural Resources	1
*EEC 105	Intro to Resource Economics	3
BIO 262	Introductory Ecology	4
NRS 212	Intro to Soil Science	4
	*General Education Course	3-4
		15-16

Sophomore Year *Spring* Semester

Course Code	Description	Cr
CHM 124/126	Intro. to Organic Chemistry/Lab	4
NRS 305	Prin. Wildlife Management	3
STA 308	Introductory Statistics	4
	Free Elective	3
	*General Education	3
		15-17

Year 2 Milestones: Complete 60 credits with a cumulative gpa of 2.0 or higher. NRS200 & NRS212 (offered fall only), NRS305 (offered spring only). BIO262 should be completed sophomore year. Meet with faculty advisor to plan jr/sr year courses and discuss internship/research/study abroad opportunities.

Junior Year *Fall* Semester

Course Code	Description	Cr
BIO 323	Field Botany & Taxonomy	4
NRS 304 or BIO 366	Field Ornithology Vertebrate Biology	3
	*General Education Course	3
	Free Elective	3
	NRS Supporting Elective	3-4
		16-17

Junior Year *Spring* Semester

Course Code	Description	Cr
NRS 309	Wildlife Management Tech.	3
NRS 324	Mammology	4
	NRS Supporting Elective	3
	*General Education Course	3
BIO 467	Animal Behavior	3
		16-17

Year 3 Milestones: Complete 90 credits with a cumulative gpa of 2.0 or higher. BIO323 (offered fall & summer only), NRS 309 (offered spring only). Meet with faculty advisor to plan senior year courses, discuss internship/research opportunities, and prepare Intent to Graduate Application for fall submission.

Senior Year *Fall* Semester

Course Code	Description	Cr
NRS 304 or BIO 366	Field Ornithology Vertebrate Biology	3
	NRS Supporting Elective	3-4
	NRS Supporting Elective	3-4
	Free Elective	3
	NRS Concentration	3-4
		15-17

Senior Year *Spring* Semester

Course Code	Description	Cr
NRS 406 or NRS 407	Wetland Wildlife (4); or Nongame & Endangered Species Mgt (3)	3-4
NRS 417	Herpetology	4
	NRS Supporting Elective	3-4
NRS 402/403	Wildlife Biometrics Field Investigations	4
	NRS Internship	
		15-17

Total Credits to Graduate = 120

Year 4 Milestones: Complete all remaining courses and requirements. NRS406 and 407 (offered spring only). Turn in Intent to Graduate packet fall semester. Minimum of 120 earned credits with a cumulative gpa of 2.0 or higher; and a minimum 2.0 gpa in major concentration courses.

NOTE: Visit http://web.uri.edu/nrs/undergraduate-programs/ for a list of NRS fall & spring courses & confirm with your advisor.

Effective: 2017 - 2018

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Appendix O

Revised 8/2016

NOTICE OF CHANGE FORM

Notice of Change for: Health Studies

Date: 3/8/18

A. PROGRAM INFORMATION

1. **Name of institution**
   University of Rhode Island

2. **Name of department, division, school or college**

   Department: Health Studies
   College: Health Sciences

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

   Initiation date: Fall 2018
   First degree date: Spring 2022

4. **Intended location of the program**

Kingston Campus of the University of Rhode Island/Independence Square

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

We would like to add additional classes to the specializations. Health studies majors select one of 3 specializations and take 6 classes within their selected specialization. The large number of majors is making it difficult for majors to sign up for the required number of classes. The proposed additional classes would serve Health Studies majors very well,

We proposed adding the following communication classes (per approval of Dr. McClure – see letter):

COM 361: Intercultural Communication (to be added to the Health Promotion, and Global and Environmental Health list of approved specialization classes)

COM 461: Managing Cultural Differences in Organizations (to be added to the Global and Environmental Health specialization list of approved specialization classes)

COM 462: Communication and Global Society (to be added to Global and Environmental Health list of approved specialization classes)

6. **If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.**

The interdisciplinary curriculum in health studies leads to a Bachelor of Science degree. The major is designed to prepare students for non-clinical careers in public health, health promotion, health services management, for-profit companies, not-for-profit organizations, and community health agencies.

Students seeking admission to this program must have completed 24 credits and have a minimum GPA of 2.50.

Program Requirements. Students are required to complete the following core curriculum (120 credits):
1) At least 40 general education credits.

2) Core courses including BIO 105 or 101 and 103; CHM 100 or 103; COM 100, 202, 208, 210, or 251; HLT 100, 200, and 450; KIN 122 and 123; MTH 107, 108, 131 or 141; PHL 101, 103 or 212 and 314; PHP 405; PSY 113; and STA 307 or PSY 200; URI 100; WRT 104 or 106.

3) 18-24 credits (6 courses) from one of the following specializations: global and environmental health; health promotion; or health services.

4) 25-31 credits of free electives.

Students select a specialization in one of the following three areas:

Global and Environmental Health. This specialization prepares students to address health problems and concerns that transcend national boundaries. The goals of the curriculum are to foster critical thinking about world health problems and disparities; examine biological, social, economic, political, and environmental factors that influence global health problems; develop practical strategies and sustainable international partnerships to address major global health and environmental challenges; and inspire a commitment to real world change. Students select six courses from the following list. At least four courses must be at the 300 or 400 level. Courses must be selected from at least three different disciplines/departments: APG 319; BIO/ENT 286; BPS 201; COM/SUS 315; COM 361; 461; 462: GCH 104; GWS 325; HPR 319; NRS 100, 411; NRS/CPL 300; NUR 160; PHL 454; PHP 201; PSC 113, 402, 403.

Health Promotion. This specialization is designed to prepare students for careers in fields whose primary emphasis is on facilitating individual, family, group, worksite, and community behavior change to promote healthy lifestyles and behaviors (e.g., increase exercise, cease smoking, manage stress). It also aims to improve life quality via the prevention and improved management of chronic illness and to help increase the length of life by reducing disease and increasing health-promoting behaviors. Students select six courses from the following list. At least four courses must be at the 300 or 400 level. Courses must be selected from at least three different disciplines/departments: BPS 201; COM 361; GWS 350, 351; HDF 200, 201, 310, 312, 314, 357, 440, 450; KIN 275, 325, 401, 425; NFS 207, 276, 360, 394, 395; PHP 201; PSY 255, 381, 460, 479.

Health Services. This specialization equips students with a range of skills necessary for careers in the health care industry, with an emphasis on preparing students for roles within the health care workforce of

tomorrow that do not involve direct patient care. Graduates will: 1) possess foundational knowledge of human health and disease; 2) gain an awareness of and appreciation for how the current health systems serve those in need; 3) understand economic principles and forces that influence the efficiency of health care service delivery and administration; and 4) be capable of effectively communicating within organizations and with other stakeholders, orally and in written form. Students select six courses from the following list. At least four courses must be at the 300 or 400 level. Courses must be selected from at least three different disciplines/departments: BPS 201, 202; BUS 341, 342; COM 351, 361, 402, 450, 461; ECN 201, 360; HSA 360; PHP 201; PSC/HDF 405; PSY 255; SOC 224; WRT 306.

7. Signature of the President

David M. Dooley

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HARRINGTON SCHOOL
OF COMMUNICATION
AND MEDIA

THINK BIG WE DO

DEPARTMENT OF COMMUNICATION STUDIES
201 Davis Hall, 10 Lippitt Road, Kingston, RI 02881 USA p: 401.874.2552 f: 401.874.4722 uri.edu/artsci/com

March 24, 2017

To Whom It May Concern:

I write in support of adding the following Com Studies courses as additional classes that Health Studies majors can take in their specializations: Com 315, Com 361, Com 461 and Com 462.

Cordially,

Kevin R. McClure

Kevin R. McClure, Ph. D.
Professor & Chair
Dept. of Communication Studies
Harrington School of Communication
and Media
202 Davis Hall
10 Lippitt Road
University of Rhode Island
Kingston, RI 02881

DEPARTMENT OF KINESIOLOGY HEALTH STUDIES - CURRICULUM SHEET 2017-2018 120 Total Credits Required

Name ID Number

Advisor Signature (Intent to Graduate Form) Date

GENERAL EDUCATION GUIDELINES: General education is 40 credits. Each of the 12 outcomes (A1-D1) must be met by at least 3 credits. A single course may meet more than one outcome, but cannot be double counted towards the 40 credit total. At least one course must be a Grand Challenge (G). No more than 12 credits can have the same course code (note- HPR courses may have more than 12 credits). General education courses may also be used to meet requirements of the major or minor when appropriate.

General Education Credit Count

At least 40 credits, no more than 12 credits with the same course code.

Course	Credits		Course		Credits
			Total Gen Ed Credits		

General Education Outcome Audit

At least 3 credits in each outcome	Course
KNOWLEDGE	
A1. STEM	
A2. Social & Behavioral Sciences	
A3. Humanities	
A4. Arts & Design	
COMPETENCIES	
B1. Write effectively	
B2. Communicate effectively	
B3. Mathematical, statistical, or computational strategie	
B4. Information literacy	
RESPONSIBILITIES	
C1. Civic knowledge & responsibilities	
C2. Global responsibilisties	
C3. Diversity & inclusion	
INTEGRATE AND APPLY	
D1. Ability to synthesize	
GRAND CHALLENGE	
G. Check that at least one course of your 40 credits is an approved "G" course	

Requirements that may be used as gen eds: BIO 101, CHM 103, COM 100, HLT 100, HLT 200, KIN 123, NFS 207, MTH 107, MTH 131, MTH 141, NRS 100, PSY 113, WRT 104, WRT 106.

SPECIALIZATIONS

1. Global & Environmental Health ___ 2. Health Promotion___ 3. Health Services_____ (check one)

Students must select a minimum of 18-24 credits (6 courses) from one specialization areas. At least 4 courses must be at the 300 or 400 level. Selected course must be from at least 3 different disciplines/ departments. See last page for course selections. List your courses below.

Course	Credit	Course	Credit

Total Credits	

Note: Health Studies majors must attain a 2.50 cumulative GPA to matriculate into the College of Health Sciences. A grade of C or higher in HLT 200 and HLT 450 is required for graduation.

CORE HEALTH STUDIES REQUIREMENTS					
Courses	**Credit**	**Prerequisites**	**Courses**	**Credit**	**Prerequisites**
Take all of the following			**Select 1 of the following**		
URI 101 (1)			WRT 104 Writing (3)*		
KIN 122 Anat &Physio (4)			WRT 106 Res. Writing (3)*		
KIN 123 Health (3)*			**Select 1 of the following**		
PSY 113 Psychology (3)*			STA 307 Biostats (4)		MTH 107, 108, 131 or 141
COM 100 Commun. (3)*			STA 308 Introductory Stat (4)		MTH 107, 111, 131 or 141
Select 1 of the following			PSY 200 Quant Methods (4)		PSY 113, college-level MTH, soph standi
MTH 107 Finite Math (3)*			**Select 1 of the following**		
MTH 108 Math Topics (3)			CHM 100 Env. Chem (3)		
MTH 131 Appl. Calc (3)*		MTH 111 (C-)	CHM 103 Intro. Chem (3)*		
MTH 141 Intro Calc (3)*		MTH 111 (C-)	**Take all of the following**		
Select 1 of the following			HLT 100 Intro to Public Health (3		
PHL 101 Critical Think (3)			HLT 200 Interdis Hlt Stud (4)*		HLT 100
PHL 103 Intro. Philos. (3)			PHL 314 Medical Ethics (3)		PHL 101, 103 or 200-level PHL
PHL 212 Ethics (3)			PHP 405 Epidemiology (4)		PSY 200 or STA 307, Jr standing
Select 1 of the following			HLT 450 Adv Health Stud (4)		HLT 200 (C or better), PSY 200 or STA 307, Jr standing
COM 202 Public Speak (3)			**Select 1 of the following**		
COM 208 Debate (3)			BIO 105 Bio. Daily Life (3)		
COM 210 Persuation (3)			BIO 101 & 103 Biology (4)*		
COM 251 Group Comm (3)					
Total Credits					

* May be used as a general education course. Mark GE if used as a gen ed (credits cannot count twice).

Free Electives			
Use free elective as needed to total 120 cedits. Free electives may be used for further study in the area of health. Completing an internship through the Center for Career and Experiential Education is highly recommended. **At least 12 credits must be at the 300 or 400 level.**			
Course	**Credit**	**Course**	**Credit**
Total Credits			

Note : Free Electives may be used for a minor or certificate or to take additional courses in a specific area of interest. Partial list of Minors: Business, Gerontology; Hunger Studies; Leadership; International Development; International Relations; Sustainability; or 18 credits in an approved minor field of study. Certificates: Substance Abuse Counseling.

Specializations. Students must select a minimum of 18-24 credits (6 courses) from one of the following specialization areas. At least 4 courses must be at the 300 or 400 level. Courses selected must be from at least 4 different disciplines/departments.

Global and Environmental Health			
Courses	Prerequisites	Courses	Prerequisites
APG 319: Cultural Behavior & Environ. (3)		PHP 201: Intro U.S. Hlth Care System (3)	
BIO/ENT 286: Insects & Disease (3)		PHL 454: Philos. of Natural Sci (3)	PHL 101 or 103
COM/SUS 315: Environ Communication (3)	jr standing	GCH 104: Health & Disease (4)	
COM 361: Intercultural Communication			
COM 461: Managing Cultural Diff Orgs			
COM 462: Comm Global Society			
HPR 309 Emerging Infectious Diseases (3)		PSC 113: Intro American Politics (4)	
NRS 100: Resource Conservation (3)*		PSC 402: Environment Policy (4)	PSC 133, jr. standing
NRS/CPL 300: Global Sustainable Devel (3)		PSC 403: Global Eco-politics (4)	PSC 210, 121 or 402
NUR 160: Global Health (3) (HR)		GWS 325: Int. Wom. Issues (3)	GWS 150

Health Promotion (HR- Highly recommended)			
Courses	Prerequisites	Courses	Prerequisites
PSY 255 Health Psychology (3) (HR)		KIN 425: Fitness/Wellness Prog (3)	KIN 275
PSY 479 Topics: Health Promote (3) (HR)		KIN 401: Current Issues Hlt Ed (3)	
HDF 357 Fam & Commun Health (3) (HR)	jr standing	NFS 276: Food, Nutrition, People (3)	NFS 207
NFS 207 General Nutrition* (3) (HR)		NFS 360: Nutrition in Exercise (3)	BIO 242
COM 461: Managing Cultural Diff Orgs			
COM 361: Intercultural Communication		NFS 394: Nutrition Lifecycle I (3)	NFS 276
HDF 200: Life Span Development (3)		NFS 395: Nutrition Lifecycle II (3)	NFS 276 and 394
HDF 201: Life Span Development II (3)		PHP 201: I U.S. Hlth Care System (3) (HR)	
HDF 310: Adolescent Development (3)	HDF 201	PSY 381: Phsyiological Psych (3)	jt standing
HDF 312: Adult Development (3)	HDF 201	PSY 460: Substance Troubled (3)	PSY 113
HDF 314: Intro to Gerontology (3)	complete 24 credits	PSY 479: Topics (3)	permission of instr.
HDF 440: Env Context of Aging (3 cr)	permission of instr.	GWS 350: Women & Health (3)	
HDF 450: Intro to Counseling (3)		GWS 352: Women & Mental Hlth (3)	
KIN 275: Intro to Exercise Science (3)			
KIN 325: Exercise Testing & Presc. (3)	KIN 275		

Health Services (HR - Highly Recommended)			
Courses	Prerequisites	Courses	Prerequisites
HSA 360: Health Services Admin. (3) (HR)	jr standing		
ECN 360: Health Economics (3) (HR)	ECN 201	COM 450: Org. Commun. Theory (3)	COM 251, jr standing
PHP 201: Intro U.S. Hlth Care System (3) (HR)		COM 461 Manage Cult. Differ. (3)	COM 361, jr standing
BUS 341: Organizational Behav. (3)	jr standing	ECN 201: Microeconomics	
BUS 342: HR Management (3)	jr standing	PSY 255: Health Psychology (3)	
COM 351: Organizatinal Comm (3)	jr standing	SOC 224: Hlt, Illlness, Med. Care (3)	
COM 351: Organizatinal Comm (3)	jr standing	WRT 306: Writ Hlth & Disability (3) (HR)	
COM 361 Intercultural Comm (3)	jr standing		
COM 402 Leadership and Motiv. (3)	BUS 201, 202, or COM 251 (1)		

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Appendix P

Revised 8/2016

NOTICE OF CHANGE FORM

Notice of Change for: Bachelors of Science in Pharmaceutical Sciences

Date: February 16, 2018

A. PROGRAM INFORMATION

1. **Name of institution**
   University of Rhode Island

2. **Name of department, division, school or college**

   Departments: (BPS and PHP)
   College: College of Pharmacy

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

   Initiation date: At start of Academic year following President's approval (for incoming freshmen and external transfers, Fall 2018 and after).
   First degree date: not applicable

4. **Intended location of the program**
   No change

5. **Summary description of proposed program (not to exceed 2 pages).**
   Update minimum criteria for acceptance into degree-granting college for BS Pharmaceutical Sciences degree

6. **If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.**
   See attached.

7. **Signature of the President**

_____
David M. Dooley

View Tracked changes to see ~~Deletions.~~ **Additions.**
New section is at the end: B.S.P.S Progression, Retention and Graduation Requirements

B.S. in Pharmaceutical Sciences (B.S.P.S)

The four-year program offers students a solid foundation in the basic sciences~~, broad exposure to the liberal arts,~~ and expertise within the pharmaceutical and biomedical sciences. It is designed to provide educational and training experiences that prepare students for careers in the pharmaceutical, consumer product, and ~~health care~~biomedical industries. Graduates of the B.S.P.S. program will be qualified to seek a diverse range of career options that include: research and development, manufacturing, product marketing, sales, ~~testing~~quality, and administrative positions within the pharmaceutical industry; research and regulatory oversight careers within government agencies; and research and teaching positions in academia. As a prelude to many of these career opportunities, the program prepares students for graduate studies in the expanding fields of pharmaceutical and biomedical sciences.

The science component of the curriculum is consistent with the admission requirements of many basic science graduate programs and professional schools. Pharmaceutical Sciences courses offered in the third and fourth year ~~will be drawn primarily from our existing curriculum, and will be~~ are taught by Department of Biomedical and Pharmaceutical Sciences (BPS) and Department of Pharmacy Practice (PHP) faculty. They provide solid, fundamental training in the pharmaceutical sciences. Students have the option to tailor their academic program to prepare them for the specific career paths that they choose by applying up to 12 credits of pre-approved Professional Electives toward the 120 credits required for the degree; At least 6 of the 12 credits of Professional Electives credits must be under BPS, PHP, or PHC course codes. ~~by substituting up to 12 credits of B.S.P.S. courses with pre-approved Professional Electives.~~ The Associate Dean, in consultation with the BPS Department Chair and the B.S.P.S. Program ~~Coordinator~~Director, will maintain a list of pre-approved Professional Electives so that the list can be updated regularly to reflect new and obsolete courses. The four-year curriculum provides education and training comparable to that offered by similar B.S.P.S. programs, and conforms to University credit requirements for four-year degree programs.

jump to top

B.S.P.S curriculum requirements.

B.S.P.S. Curriculum Requirements. A total of 120 credits is required for graduation. The curriculum can be described in three distinct components. ~~The first component consists of 40 credits of general education requirements~~One component consists of University General Education which is required of all University graduates. The second component consists of science and mathematics pre-requisite courses that will deliver a firm foundation in the life and physical sciences, and satisfy admission requirement for many basic science graduate programs and professional schools. These pre-requisite courses are completed before entry into the degree-granting college. The third component is the B.S.P.S. upper level courses and labs in the major offering students a strong, basic, and applied understanding of the pharmaceutical and biomedical sciences. Within the third component, students have the option to tailor their academic program to prepare them for the specific career paths that they choose by applying up to 12 credits of pre-approved Professional Electives toward the 120 credits required for the degree. At least 6 of the 12 credits of Professional Electives credits must be under BPS, PHP, or PHC course codes. ~~by substituting up to 12 credits of B.S.P.S. courses with pre-approved Professional Electives. These courses allow our students to tailor a program of study to suit their specific career goals.~~

First Year
First Semester: 15~~-16~~ credits
CHM 101 (3), 102 (1); ~~BIO 101/103 (4);~~ BIO 101 (3), 103 (1); COM 100 (3); URI 101 (1); and MTH 103 or 111 (3) OR general education course (3~~-4~~).

Second semester: 14~~–15~~ credits
CHM 112 (3), 114 (1); BIO 220 (3), 221 (1);~~BIO 121 (4);~~ MTH 131 (3)~~ or 141 (4)~~; and WRT 106 (3).

Second Year
First Semester: ~~17–18~~15 credits
BPS 250 (1); CHM 227 (3); CMB 201 (4); BIO 222 (3), 223 (1);~~ BIO 242 (3);~~ and ECN 201 (3).~~; and one general education course (3–4).~~

Second semester: 15~~–18~~–16 credits
CHM 228 (3); CMB 311 (3); STA 307 OR 308 (4); one general education course (3); ~~and CHM 226 (2) plus one general education course (5–6) OR two general education courses (6–8)~~and ~~OR~~ BPS 345 (3).

Third Year
First Semester: 16–17 credits
BPS 301/303/305 (6); 313 (2); 401 (3); CHM 226 (2)~~ OR BPS 345 (3);~~ ~~CHM 226 (2);~~ and one general education course (3~~–4~~).

Second semester: 15–16~~–17~~ credits
BPS 306 (2); BPS 325 (2); 402 (3); 425 (3); 443 (2); BPS 498 (3) OR one Professional Elective (3–4)~~; and~~ OR one general education course (3–4).

Fourth Year
First Semester: 15–16 credits
BPS ~~345 (3);~~ 442 (2); 451 (4); two Professional Electives (3); ~~503 (3);~~ and one general education course (3–4)

Second semester: 12–17 credits
BPS 445 (3) OR Professional Elective (3); BPS 446 (3) OR Professional Elective (3); ~~460 (3)~~Professional Elective (3); and one to two general education course (3–8)

B.S.P.S Progression, Retention and Graduation Requirements

B.S.P.S. students request transfer from University College for Academic Success to the College of Pharmacy during the semester in which they are enrolled to complete all science and mathematics pre-requisite courses (BIO 101, 103, 220, 221, 222, 223; CHM 101, 102, 112, 114, 227, and 228; CMB 201 and 311; MTH 131 or 141; and STA 308 or 307). Transfer requests will be reviewed and acted upon after grades are posted for the enrolled courses.

Only those students having an equal or greater than 2.30 grade point average in the required pre-requisite courses (BIO 101, 103, 220, 221, 222, 223; CHM 101, 102, 112, 114, 227, and 228; CMB 201 and 311; MTH 131 or 141; and STA 308 or 307), and an overall cumulative grade point average of 2.00 or above, will be admitted to the College of Pharmacy for the B.S. Pharmaceutical Sciences degree. Applicants not meeting the criteria will not be considered for admission to the college.

THE
UNIVERSITY
OF RHODE ISLAND

Revised 8/2016

NOTICE OF CHANGE FORM

Notice of Change for: Bachelors of Science in Pharmaceutical Sciences

Date: February 16, 2018

A. PROGRAM INFORMATION

1. **Name of institution**
   University of Rhode Island

2. **Name of department, division, school or college**

   Departments: (BPS and PHP)
   College: College of Pharmacy

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

   Initiation date: At start of Academic year following President's approval (for incoming freshmen and external transfers, Fall 2018 and after).
   First degree date: not applicable

4. **Intended location of the program**
   No change

5. **Summary description of proposed program (not to exceed 2 pages).**
   Update minimum criteria for acceptance into degree-granting college for BS Pharmaceutical Sciences degree

6. **If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.**
   See attached.

7. **Signature of the President**

_____
David M. Dooley

[Changes not tracked, showing final document only.]

B.S. in Pharmaceutical Sciences (B.S.P.S)

The four-year program offers students a solid foundation in the basic sciences and expertise within the pharmaceutical and biomedical sciences. It is designed to provide educational and training experiences that prepare students for careers in the pharmaceutical, consumer product, and biomedical industries. Graduates of the B.S.P.S. program will be qualified to seek a diverse range of career options that include: research and development, manufacturing, product marketing, sales, quality, and administrative positions within the pharmaceutical industry; research and regulatory oversight careers within government agencies; and research and teaching positions in academia. As a prelude to many of these career opportunities, the program prepares students for graduate studies in the expanding fields of pharmaceutical and biomedical sciences.

The science component of the curriculum is consistent with the admission requirements of many basic science graduate programs and professional schools. Pharmaceutical Sciences courses offered in the third and fourth year are taught by Department of Biomedical and Pharmaceutical Sciences (BPS) and Department of Pharmacy Practice (PHP) faculty. They provide solid, fundamental training in the pharmaceutical sciences. Students have the option to tailor their academic program to prepare them for the specific career paths that they choose by applying up to 12 credits of pre-approved Professional Electives toward the 120 credits required for the degree; At least 6 of the 12 credits of Professional Electives credits must be under BPS, PHP, or PHC course codes. The Associate Dean, in consultation with the BPS Department Chair and the B.S.P.S. Program Director, will maintain a list of pre-approved Professional Electives so that the list can be updated regularly to reflect new and obsolete courses. The four-year curriculum provides education and training comparable to that offered by similar B.S.P.S. programs, and conforms to University credit requirements for four-year degree programs.

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B.S.P.S curriculum requirements.

B.S.P.S. Curriculum Requirements. A total of 120 credits is required for graduation. The curriculum can be described in three distinct components. One component consists of University General Education which is required of all University graduates. The second component consists of science and mathematics pre-requisite courses that will deliver a firm foundation in the life and physical sciences, and satisfy admission requirement for many basic science graduate programs and professional schools. These pre-requisite courses are completed before entry into the degree-granting college. The third component is the B.S.P.S. upper level courses and labs in the major offering students a strong, basic, and applied understanding of the pharmaceutical and biomedical sciences. Within the third component, students have the option to tailor their academic program to prepare them for the specific career paths that they choose by applying up to 12 credits of pre-approved Professional Electives toward the 120 credits required for the degree. At least 6 of the 12 credits of Professional Electives credits must be under BPS, PHP, or PHC course codes.

First Year
First Semester: 15 credits
CHM 101 (3), 102 (1); BIO 101 (3), 103 (1); COM 100 (3); URI 101 (1); and MTH 103 or 111 (3) OR general education course (3).

Second semester: 14 credits
CHM 112 (3), 114 (1); BIO 220 (3), 221 (1); MTH 131 (3); and WRT 106 (3).

Second Year
First Semester: 15 credits
BPS 250 (1); CHM 227 (3); CMB 201 (4); BIO 222 (3), 223 (1); and ECN 201 (3).

Second semester: 15-16 credits
CHM 228 (3); CMB 311 (3); STA 307 OR 308 (4); one general education course (3); and BPS 345 (3).

Third Year
First Semester: 16-17 credits
BPS 301/303/305 (6); 313 (2); 401 (3); CHM 226 (2); and one general education course (3).

Second semester: 15-16 credits
BPS 306 (2); BPS 325 (2); 402 (3); 425 (3); 443 (2); BPS 498 (3) OR one Professional Elective (3-4) OR one general education course (3-4).

Fourth Year
First Semester: 15-16 credits
BPS 442 (2); 451 (4); two Professional Electives (3); and one general education course (3-4)

Second semester: 12-17 credits
BPS 445 (3) OR Professional Elective (3); BPS 446 (3) OR Professional Elective (3); Professional Elective (3); and one to two general education course (3-8)

B.S.P.S Progression, Retention and Graduation Requirements

B.S.P.S. students request transfer from University College for Academic Success to the College of Pharmacy during the semester in which they are enrolled to complete all science and mathematics pre-requisite courses (BIO 101, 103, 220, 221, 222, 223; CHM 101, 102, 112, 114, 227, and 228; CMB 201 and 311; MTH 131 or 141; and STA 308 or 307). Transfer requests will be reviewed and acted upon after grades are posted for the enrolled courses.

Only those students having an equal or greater than 2.30 grade point average in the required pre-requisite courses (BIO 101, 103, 220, 221, 222, 223; CHM 101, 102, 112, 114, 227, and 228; CMB 201 and 311; MTH 131 or 141; and STA 308 or 307), and an overall cumulative grade point average of 2.00 or above, will be admitted to the College of Pharmacy for the B.S. Pharmaceutical Sciences degree. Applicants not meeting the criteria will not be considered for admission to the college.

THE UNIVERSITY OF RHODE ISLAND

Pharmaceutical Sciences-BS Effective Fall 2018
120 Credits Total Class of 2021

ABOUT THE PHARMACEUTICAL SCIENCE BS DEGREE:

The four-year program offers students a solid foundation in the basic sciences and expertise within the pharmaceutical and biomedical sciences. It is designed to provide educational and training experiences that prepare students for careers in the pharmaceutical, consumer product, and biomedical industries. Graduates of the B.S.P.S. program will be qualified to seek a diverse range of career options that include: research and development, manufacturing, product marketing, sales, quality, and administrative positions within the pharmaceutical industry; research and regulatory oversight careers within government agencies; and research and teaching positions in academia. As a prelude to many of these career opportunities, the program prepares students for graduate studies in the expanding fields of pharmaceutical and biomedical sciences.

GENERAL EDUCATION GUIDELINES: General education is 40 credits. Each of the twelve outcomes (A1-D1) must be met by at least 3 credits. A single course may meet more than one outcome, but cannot be double counted towards the 40 credit total. At least one course must be a Grand Challenge (G). No more than twelve credits can have the same course code (note- HPR courses may have more than 12 credits). General education courses may also be used to meet requirements of the major or minor when appropriate.

General Education Credit Count				
At least 40 cr., no more than 12 credits with the same course code. (Note: Not all boxes need to be filled to add to 40 credits)				
Course	**Cr.**		**Course**	**Cr.**
COM100	3			
WRT106	3			
ECN201	3			
CHM101	3			
BIO101	3			
BIO 103	1			
MTH103	3			
MTH131	3			
			Total Gen Ed credits	≥ 40

General Education Outcome Audit	
	Course
KNOWLEDGE	
A1. STEM CHM101, MTH111, MTH131,	BIO101
A2. Social & Behavioral Sciences	ECN201
A3. Humanities	
A4. Arts & Design	
COMPETENCIES	
B1. Write effectively	WRT106
B2. Communicate effectively	COM100
B3. Mathematical, statistical, or computational strategies	MTH103/131
B4. Information literacy	WRT106
RESPONSIBILITIES	
C1. Civic knowledge & responsibilities	
C2. Global responsibilities	
C3. Diversity and inclusion	
INTEGRATE & APPLY	
D1. Ability to synthesize	
GRAND CHALLENGE	
G. Check that at least one course of your 40 credits is an approved "G" course	

THE UNIVERSITY OF RHODE ISLAND

Pharmaceutical Sciences-BS Effective Fall 2018
120 Credits Total Class of 2021

Basic Non-Science Requirements (*these courses also fulfill general education requirements)	**Course**	**Grade**	**Cr**
Careers in Pharmaceutical Science	BPS 250		1
Communication *B2	COM 100*		3
Microeconomics *A2	ECN 201*		3
Research Writing *B1, B4	WRT 106*		3
Introduction to URI	URI 101		1

Basic Science /Math Requirements	**Course**	**Grade**	**Cr**
General Chemistry I *A1	CHM 101*		3
General Chemistry I Lab	CHM 102		1
General Chemistry II	CHM 112		3
General Chemistry II Lab	CHM 114		1
Organic Chemistry Lab	CHM 226		2
Organic Chemistry I	CHM 227		3
Organic Chemistry II	CHM 228		3
General Biology *A1	BIO 101*		3
General Biology Lab	BIO 103		1
Anatomy	BIO 121		4
Physiology	BIO 242		3
Microbiology	CMB 201		4
Biochemistry	CMB 311		3
Intro to Statistics	STA 308		4
Calculus *A1, B3	MTH 131* or 141*		3

* Course approved for General Education

Major Requirements			
3rd Year- 1st Semester	**Course**	**Grade**	**Cr.**
Dosage I	BPS 301		2
Pharmaceutics II	BPS 315		4
Medicinal Chemistry	BPS 313		2
Pharmacology I	BPS 401		3
General Education Course	Record on Page 1		3-4

General Education Course or BSPS Professional Elective (optional)	Record on Page 1 or See Page 4		3-4
3rd Year-2nd Semester			
Drug Metabolism	BPS 325		2
Pharmacology II	BPS 402		3
cGMP Processes	BPS 425		3
Formulations and Manufacturing Lab	BPS 443		2
Pharmacokinetics	BPS 306		2
General Education Course	Record on Page 1		3-4
4th Year- 1st Semester			
Intro to Pharmaceutical Research	BPS 345		3
Pharmacogenetics/genomics	BPS 442		3
Techniques Lab	BPS 451		4
BSPS Professional Electives	See Pre-Approved Electives		3
General Education Course	Record on Page 1		3-4
4th Year- 2nd Semester			
BSPS Professional Elective *Suggested course:* BPS 445	See Pre-Approved Electives Page 4		3
BSPS Professional Elective *Suggested course:* BPS 446	See Pre-Approved Electives Page 4		3
BSPS Professional Elective *Suggested course:* BPS 498	See Pre-Approved Electives Page 4		3
General Education Course	Record on Page 1		3-4
General Education Course (optional)	Record on Page 1		3-4

BSPS Professional Electives (12 credits required)			
Required Course Code	**Substituted Course Code**	**Grade**	**Cr.**

** Students have the option to tailor their academic program to prepare them for the specific career paths that they choose by taking 12 credits of BSPS pre-approved professional electives. (see page 4) At least 6 of the 12 credits of Professional Electives credits must be under BPS, PHP, or PHC course codes

Pre-Approved BSPS Professional Electives

In College of Pharmacy

BPS 311 (2) Foundations of Human Disease I (Fall)
BPS 426x (3) cGMP Environmental Risks, Control and Monitoring, Spring
BPS 436 (3) Psychotropic Drugs and Therapy (in Providence, Dr. Chichester, Spring).
BPS 445 (3) Natural Products and Biotech Drugs (Spring, currently Dr. Rowley teaches)
BPS 446 (3) Biotechnology, Biologics, and Biosimilar Drugs, Spring, BPS 442 is pre-requisite.
BPS 450 (3) Practical Tools for Molecular Sequence Analysis, Fall (via Cell & Molecular Biology Dept).
BPS 455 (3) Protein Molecular Modeling for Biomedical Sciences (Dr. King. Fall)
BPS 497/498 (up to 6 credits total counted toward BSPS electives, Special Problems in BPS, independent study with a faculty. Fall, Spring. 6 credit max also includes ITR 301/302/303 and HPR 401/402.
BPS 530 (3) Advanced Drug Metabolism (seniors only, good grade in BPS 325, Spring, odd years only)
BPS 533 (3) Medicinal Plants, Dr. Seeram, Fall (BSPS and PharmD, juniors and seniors).
BPS 542 (3) Bioinformatics I, Spring (project course, with computer sciences, cell & molecular biology).
BPS 546 (3) Advanced Toxicology (spring, Dr. Slitt, not every year, graduate course but ok for seniors)

PHC 502 (3) Drug Development, Fall, graduate course but ok for seniors (not juniors!).
PHC 520 (1-3 cr) Pharmaceutical Sciences Journal Club, can retake for max of 4 credits, different topics

PHP 405 (4) Epidemiology in Health Care (permission numbers for BSPS, juniors/seniors, Fall, Spring)
PHP 422 (3) Biostatistics II, (Katenka, Fall)
PHP 535X (3) Meta analysis by Ami (pre-PHP 540)
PHP 540 (3) Principles, Methods, and Applications of Epidemiology (graduate class, seniors, Fall)
PHP 550 (3) Pharmacoepidemiology (pre-PHP 540 or PHP 405), Spring, Fall
PHP 575X (3) Causal Inference (pre-PHP 540)
PHP 580 (3) Pharmacoeconomic Analysis, Spring, graduate class, seniors
PHP 585X (3) Measurement in Health Outcome (pre-PHP 540)
PHP 685 Pharmacoeconomic Methods (pre-PHP 580 and instructor permission)

From other Colleges and Departments (max of 6 credits outside of College of Pharmacy)

BIO 341 (3) Principles of Cell Biology (seats first to BIO majors)
BIO/CMB 352 (4) General Genetics (pre-req BIO101 and BIO102). Spring

BUS 315 (3) Legal Environment of Business, Spring (see business school for enrollment permissions)
BUS 341 (3) Organizational Behavior (pre-BUS minor); (see business school for enrollment permissions)
BUS 342 (3) Human Resources management (bus minor) (see business school for permissions)
BUS 365 (3) Marketing Principles. Spring, (see business school for permissions)

CHM 425 (2) Advanced Organic Chemistry lab (concurrent with chm427). Fall
CHM 427 (3) Intermediate Organic Chemistry, Dr. Levine, Fall

CMB 320 (3) Introduction to Computational Biology (Spring, pre MIC201 or CMB201)
CMB 333 (3) Immunology and Serology, (pre-req MIC201 or CMB201) Fall
CMB 334 (3) Virology, (pre-req MIC201 or CMB201), Spring
CMB 352 (4) General Genetics (pre-req BIO101 and BIO102). Spring
CMB 437 (3) Fundamentals of Molecular Biology (pre-req CMB 352 general genetics)
CMB 482 (3) Proteins & Enzymes (pre-req biochemistry BCH311 or CMB311)
CMB 435 (3) Introduction to Biology and Genetics of Cancer (Howlett, Fall)

By approval: other 300-level and above courses related to the major.

NOTE: These are courses that have been offered recently. No guarantee they will be offered every year: See each Department for schedule and permissions. (Updated February 23, 2018)

B.S in Pharmaceutical Sciences (Effective Fall 2018)

Class of 2021
Requirements by Year

For course titles and pre-requisite information, please visit: uri.edu/catalog

Fall	Spring	Milestones
Year One		
CHM 101/102	CHM 112/114	Complete CHM 101 and CHM 112 w/C- or higher (pre-req for CHM 227)
BIO 101/103	BIO 121	
MTH 103 or MTH 131	MTH 131 (or if completed, Gen Ed)	Complete BIO 121
WRT 106 or COM 100	ECN 201	Complete each pre-prof course w/D or better and pre-prof GPA 2.0 or higher
URI 101	Gen Ed	
(15 cr. total)	(17 cr. total)	Complete 30 cr.

Year Two		
CHM 227	CHM 226	Complete each pre-prof course w/D or better and pre-prof GPA 2.0 or higher
BIO 242 (+ 244 recommended)	CHM 228	
CMB 201	CMB 311	Complete precurriculum requisites to move from UC to College of Pharmacy
WRT 106 or COM 100	STA 308	
BPS 250	Gen Ed	Complete CHM 227 with C- or higher
(14-15 cr. total	(15 cr. total)	Complete 60 cr.

Year Three		
BPS 301	BPS 325	Advanced knowledge of Pharmacology, Medicinal Chemistry, Pharmaceutics and Compounding
BPS 315	BPS 425	
BPS 313	BPS 443	
BPS 401	BPS 402	Complete 90cr
Gen Ed or BSPS Prof. Elective	BPS 306	
Gen Ed	Gen Ed	
(17 cr total)	(15-16 cr total)	

Year Four		
BPS 442	BSPS Prof. Elective *Suggested BPS 445*	Knowledge of Pharmacogenomics, Laboratory Methods, and Pharmakinetics
BPS 451	BSPS Prof. Elective *Suggested BPS 446*	
BPS 345	BSPS Prof. Elective *Suggested BPS 498*	
Gen Ed	Gen Ed	Complete Intent to Graduation Form w/the College of Pharmacy
BSPS Elective or Gen Ed	Gen Ed	
(16 cr total)	(15 cr total)	2.0 GPA, complete 120 cr for graduation

Note: This plan is not intended to be prescriptive. Credits in transfer, as well as summer or j-term coursework, may result in deviations from the above recommendations.