



University Courses & Curricula Committee 2018-2019

October 24, 2018
 Talley Student Union 5101
 12:45pm-2:45pm

Call to Order 12:45pm

- Welcome from Chair Marta Klesath
- Remarks and Updates from OUCCAS/DASA
- Approval of UCCC October 10th 2018 Minutes
- Course and Curricular Business

New Business

Consent Agenda		
Action	Type	Notes
ACC 340 Accounting Information Systems	Minor	Revisions: prerequisites, description
ACC 451 Internal Auditing	Minor	Revisions: prerequisites, description
ACC 460 Governmental and Nonprofit Accounting	Minor	Revisions: prerequisites, description
HI 430/530 Modern France	Minor	Revision: Removing HUM GEP category
TDE 452 Lab Planning in Technology Education	Minor	Revisions: prerequisites
BA Biological Sciences (17BIOBA)	Minor	Revisions:120 credit hour memo; removing free electives and footnote clean up.
BS Biological Sciences (17BIOBS) 4 Subplans: 17BIOSCMCD, 17BIOSCPN, 17BIOSCHB, 17BIOSCEEC	Minor	Revisions:120 credit hour memo; removing free electives and other electives.
BS Chemistry (17CHEMBS)	Minor	Revisions:120 credit hour memo; removing free elective
BS Genetics (17GNBS)	Minor	Revisions:120 credit hour memo; removing free electives and other electives.

College of Sciences			
Presenter	Reviewers	Action	Type
Muse	Bruce, Rieder, Roise	Chemistry Honors Program	Revisions: requirements and description
Muse	Merrill, Krause, Orphanides	Marine Sciences (BS) Biology (17MARSCBS-17MARSCBIO)	Revisions: 120 credit hour edits and updates
Muse	Bruce, Seracino, Despain	Marine Sciences (BS) Chemistry (17MARSCBS-17MARSCCHM)	Revisions: 120 credit hour edits and updates
Muse	Domingue, Kilbourne, Despain	Marine Sciences (BS) Geology (17MARSCBS-17MARSCGEO)	Revisions: 120 credit hour edits and updates
Planchart	Driscoll, Hessling, Griffin Hillis	Marine Sciences (BS) Physics (17MARSCBS-17MARSCPHY)	Revisions: 120 credit hour edits and updates
Planchart	Merrill, Carlson Welch, Hergeth	Meteorology (BS) (17METBS)	Revisions: 120 credit hour edits and updates
Planchart	Hergeth, Hessling, Reynolds	Meteorology (BS) Marine Sciences (17METBS-17METMAR)	Revisions: 120 credit hour edits and updates
Planchart	Roise, Rieder, Driscoll	Natural Resources (BS) Marine & Coastal Resources (17NATREBS-17NATREMC)	Revisions: 120 credit hour edits and updates

College of Humanities and Social Sciences			
Presenter	Reviewers	Action	Type
Driscoll	Planchart, Seracino, Bruce	ARS 251 The Arts of a World Capital: London	Revisions: SLOs, fees, eval methods
Driscoll	Reynolds, Krause, Orphanides	REL 311 Introduction to the Old Testament	Revisions: SLOs, description, eval methods
Driscoll	Carlson Welch, Roise, Kuzenski	REL 312 Introduction to the New Testament	Revisions: SLOs, description, eval methods
Despain	Rieder, Muse, Reynolds	REL 314 Introduction to Intertestamental Literature	Revisions: SLOs, description, eval methods
Despain	Muse, Kuzenski, Roise	REL 317 Christianity	Revisions: SLOs, description, eval methods
Despain	Domingue, Planchart, Bruce	REL 327 Issues in Contemporary Religion	Revisions: SLOs, description, eval methods

College of Natural Resources

Presenter	Reviewers	Action	Type
Roise	Kuzenski, Orphanides, Krause	Environmental Technology and Management 15ENVTBS	Revisions: 120 Credit Hours
Roise	Griffin Hillis, Hessling, Seracio	Fisheries, Wildlife, and Conservation Biology 15FWSCIBS(3 concentrations) Fisheries 15FWSCIF, Wildlife 15FWSCIW, Conservation Biology 15FWSCICB	Revisions: 120 Credit Hours
Roise	Despain, Hergeth, Rieder	Sustainable Materials and Technology Curriculum 15SMTBS	Revisions: 120 Credit Hours
Roise	Driscoll, Muse, Kilbourne	Sustainable Materials and Technology Curriculum: Wood Products 15SMTBS-15SMTWP	Revisions: 120 Credit Hours

College of Education

Presenter	Reviewers	Action	Type
Hessling	Hergeth, Krause, Planchart	ECD 296 Special Topics in Education: Counselor Education	Revisions: Changing grading method from S/U only to Graded option

SLO= Student Learning Outcomes

Discussion:

Notes:

- All linked course actions are viewable in CIM.
- To view actions, please click on the hyperlink. You may need to use your Unity ID to log in.
- If you experience issues logging in, please go to <https://next-catalog.ncsu.edu/courseadmin/> and type the course prefix and number into the search bar.

SLO = Student Learning Outcomes



Division of Academic and Student Affairs
Office of Undergraduate Courses & Curricula
oucc.dasa.ncsu.edu
courses-curricula@ncsu.edu

Campus Box 7105
211A Park Shops
Raleigh, NC 27695-7105
P: 919.515.9769

University Courses and Curricula Committee

October 10, 2018
Talley Student Union 5101
Call to Order: 12:45 pm

Members Present: Past Chair Helmut Hergeth, Jackie Bruce, Melissa Merrill, Scott Despain, Catherine Driscoll, Kathleen Rieder, Peter Hessling, Kanton Reynolds, John Kuzenski, Joseph Roise, Spencer Muse, Wendy Krause, Annie Calson Welch, Peggy Domingue, Andreas Orphanides, Antonio, Planchart, Berkley Griffin Hillis`

Members Absent: Chair Marta Klesath, Rudi Seracino(chair-elect)

Guests: Jason DeRousie, Cynthia Edgington, Natalie Bullock Brown, Karey Harwood, Leigh Shamblin, Brian Mathis (Pack the Polls)

Ex-Officio Members Present: Lexi Hergeth, Li Marcus, Bret Smith, Jordan Luzader, Tim Petty, Lindsey Mihalov, Charles Clift

WELCOME AND INTRODUCTIONS

- **Remarks from Past Chair** - Welcomed the committee members introduced guests.
- **Remarks by Vice Chancellor and Dean Dr. Mike Mullen**- Mike Mullen expressed his appreciation for the faculty serving on the university level committees. He expressed his pride in NC State particularly because of involvement of NC State staff and faculty in helping UNC system schools affected by Hurricane Florence. He also informed the committee that the US Postal Service has chosen NC State as an example and recommended looking at the Kwanza festivities on Facebook. He reminded the committee that the UCCC/CUE reception will be on May 3, 2019. Mike Mullen also informed the committee that the system office (BOG) passed a policy this summer that any senior high school students who take AP courses and receive a score of a 3, 4, or 5 will get college credit. He explained the individual colleges will decide what a score of a 3, 4, or 5 will equate to, if it will be a required course in the program or a free elective. Members inquired about efforts being made to assist students affected by the hurricane. Mike explained that a number of resources are available to students and said that if there are students of concern to go to the NCSU cares website or reach out to him or Mike Giancola.
- **Remarks from OUCCAS/DASA**- Li Marcus reminded the committee that the 120 credit hour project is still underway and that the curricular changes signed by departments and colleges are due to OUCC by the end of this month (October). Li and Bret are compiling a memo to be sent to the system office informing them programs are doing to respond to the 120 credit hour mandate. If actions will be late, please send an e-mail summary of planned action to Li lamarcus@ncsu.edu. Li also reminded the committee that actions sent to courses-curricula@ncsu.edu should be ready to be put on the university level committee after being approved by the college committee. She also reminded the committee of the e-mail sent out which included the update that the office will no longer be able to make changes/updates to actions for departments/colleges after the agenda has been sent out. Guest asked if the suggestions from OUCCAS are included in the deadlines, Li explained that the 120 credit hour deadline is October 31, 2018, any actions with suggestions will have a deadline indicated by Lexi or Li for suggestions to be made before coming to the university level committee
- **Presentation: Pack the Polls**- Brian Mathis presented information about early voting location on campus. The purpose of pack the polls is to increase the awareness of voting opportunities and explained the early voting site for NC State is in Talley Student Union from October 17 through November 3, 2018 open weekdays 7AM- 7PM, Saturdays 8AM-1PM and Sundays from 1PM – 6PM. Brian explained that the goal is to help students register and learn the process of voting. He also showed the website packthepolls.dasa.ncsu.edu/nc-state-community/. Brian said they have reached out to the department of political science to help explain and understand the first six amendments. Member asked if they have already registered in their home county but want to register for Wake County, can they? Brian responded yes, they can or they can request and absentee ballot. Brian also indicated in the future they hope to use MyPack to help assist students to be able to register to vote while residing in Raleigh while enrolled. Brian told the committee his office is reminding students to only vote once and to check that students are US citizens before registering them to vote as this could potentially impact students studying at NC State on student visas.
- **Approval of the Minutes from September 26th 2018 – *Approved Unanimously***
 - Discussion: Member Catherine moved to approve. Minutes HS 491 in the record of the vote it has an 'a' where an 'o' should be in apposed in the vote line and in the last paragraph in this action in the minutes.

NEW BUSINESS

- **Consent Agenda**
(EC404,410,413,431,436,449,480,490,HESF282,HESR248,HESS230,237,279,280,STS304,403,405,490,THE236,403,16IDSWG&16WGM,16LPSBA,C NRMemo) -*Approved Unanimously*
Discussion: Member Kathleen Rieder moved to approve.

- **BAE 401/(501) Sensors and Controls - Approved with Friendly Suggestions**
Discussion: Member Melissa Merrill presented the revised course action. Member commented that in the student evaluation methods the graduate items add up to 115 percent instead of 100 percent. Presenter indicated there is a comment in CIM addressing this so that it would be fixed at the ABGS level. Member made the Friendly Suggestion to include the cost of the electronic copy of the text book in addition to the hardcopy.
- **BUS 280 Business Essentials - Approved Pending with Friendly Suggestions**
Discussion: Member John Kuzenski presented the new course action. Guest Leigh Shamblin indicated that they will add the cost of the textbook. Member commented the syllabus doesn't indicate the course is letter grade grading basis only. Member indicated the last student learning outcome is not measurable. Guest indicated the students have feedback form survey questions. Member indicated an attendance statement is needed; however, guest responded this is a virtual distance education, asynchronous course. Member retracted the attendance statement. Member indicated the disabilities statement goes beyond the ADA and suggested titling it as "Students with Disabilities". Member suggested that CIM and the syllabus need to match to one credit hour course. Guest indicated this should be a 3 credit hour course with 8 contact hours in CIM. Member moved to amend the motion from approved to approve pending the correction of the credit hours. Friendly suggestions to provide the grading basis in the syllabus.
- **BUS 469 Digital Marketing Practicum - Approved Pending with Friendly Suggestions**
Discussion: Member John Kuzenski presented the new course action. Member moved the motion to approved pending the inclusion of the correct disability resources statement. Member indicated that the cost of the textbook should be added in CIM as it is listed in the syllabus. XONV member from the office of assessment brought attention to the immeasurability of the student learning outcomes. Pending the inclusion of the correct disabilities recourses statement and updating the learning outcomes to make them measurable. Members suggested including the cost of the textbook in CIM.
- **Certificate in the Essentials of Business - Approved Pending**
Discussion: Member John Kuzenski presented the new certificate action. Guest Jason DeRousie explained this is a new certificate for students to take within the summer semesters or during the academic year. Li Marcus explained that certificates have approval beyond the university level and that the certificate will not move forward until the course is approved forward. Member moved to amend the motion to approved pending the approval of BUS 280. Chair asked if BUS 280 would take place of some other courses, guest responded it could count as a substitute for some courses, but the college isn't advertising the substitution for all students.
- **HI 385 Introduction to Public History - Approved Unanimously**
Discussion: Member Scott Despain presented the new course action. Chair asked if there's additional information but "see syllabus" is in all of the CIM fields, Li indicated this is under discussion with the associate deans.
- **PSY 208 Psychobiology of Success - Approved Unanimously**
Discussion: Member Scott Despain presented the new course action. XONV member asked if this is a required course, presenter responded it isn't at this time. Member brought attention to his interpretation that the course is about stress but is marketed as "success". Presenter explained that while the course discusses stress, the idea is to successfully manage stress.
- **WGS/AFS 380 Black Feminist Theory - Approved Unanimously**
Discussion: Member Catherine Driscoll presented the new course action. Member indicated the catalog description in the syllabus has an additional two sentences. Member asked what the difference between "black feminism" and "feminism generally" is. Guest Karey Harwood indicated black feminist theory is specific while feminism in general is broader. Member complimented the syllabus's participation breakdown in the syllabus and indicated the syllabus prompted further learning for her personally. Member brought attention to requisites and scheduling, in CIM indicating the course will restrict seating for WGS and AFS majors, Li Marcus confirmed this section is for scheduling and doesn't need to be put in the description as the restriction will be set up in the schedule of courses and will show up during enrollment.
- **Film Studies Minor (16FSM) - Approved Unanimously**
Discussion: Member Catherine Driscoll presented the revised curricular action.
- **Jewish Studies Minor (16JSTM) - Approved Unanimously**
Discussion: Member Catherine Driscoll presented the new curricular action.
- **EMS 472/(572) Teaching Mathematics Topics in Senior High School - Approved Unanimously**
Discussion: Member Peter Hessling presented the revised course action. Member brought attention to the rubric in the

syllabus and suggested separating the communication with students vs. communication with the faculty member. Member brought attention to the syllabus in the participation grade and asked if there was a feedback loop and does the student receive an interim grade for participation. Guest responded that the participation is graded throughout the year. Member suggested providing some kind of feedback for the student to be provided during the semester for a chance for improvement. Member suggested correcting spelling errors in the syllabus. Member suggested removing the additional grading method statements for clarity in the syllabus and the instructional resources statement should indicate something like “no additional resources are needed, course is in instructor’s regular rotation” or other resource statement. Member suggested removing the word none in the syllabus under academic honesty. Member suggested in the field placement portfolio to add the clarification to the statement in the last statement that a “full project description and rubric will be shared” at the beginning of the class.

Discussion: No further discussion

Meeting adjourned at 2:05 pm

Respectfully submitted by Lexi Hergeth

NC STATE UNIVERSITY

TO: Office of the Dean for Academic and Student Affairs
FROM: Jane Lubischer, Director of 17BIOBA
RE: updates to the 17BIOBA curriculum
DATE: 20 September 2018

Proposed effective date: July 2019

Proposed changes and justification


This minor action proposes to make changes that will comply with the mandated 120 credit hour total, update course prefixes and numbers, and clean up the footnotes included with the semester-by-semester display.

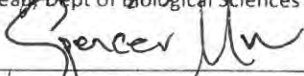
Specifically, we propose to:

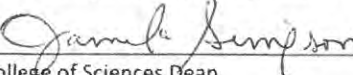
1. Remove one credit hour from the Life Science Electives requirement, bringing it from 25 credit hours to 24 credit hours. To make this change, edits are required in:
 - 1a. Spring Semester Sophomore Year
 - 1b. Footnote 7
2. Change the “Advanced Communication Requirement” to the “Communication and Writing Requirement” in order to reinforce the fact that students must take one communication course and one advanced writing course. The requirement itself is not being changed, just the name.
2. In Spring Semester Junior Year, change Advanced Communication Requirement to Writing Requirement. The Communication part of this requirement is already indicated in Fall Semester Sophomore Year.
3. In Footnote 4, correct a typo and remove an old link.
4. In Footnotes 7&8, change the prefix (from BIO to BSC) and add 494 to reflect changes in these experiential learning course offerings.
5. In Footnote 6 and Footnote 7, we would like to refer students to the courses lists maintained on their degree audit and not include all of those courses here. Please include the text provided, but do not include lists of courses other than what is in the text provided.

These changes are noted in Format A and Format B – **additions are highlighted** and ~~deletions are struck-through~~

SIGNATURES (AS REQUIRED):

 9-21-18
Head, Dept of Biological Sciences Date

 9/28/18
Chair, College Curriculum Committee Date

 10/1/18
College of Sciences Dean Date

Chair, University Courses & Curricula Committee Date

Dean, Academic and Student Affairs Date

PROPOSED EFFECTIVE DATE: Summer 2019

APPROVED EFFECTIVE DATE: _____

Proposed Semester-by-Semester Display (Format A)PROPOSED EFFECTIVE SEMESTER: July 2019DEGREE TITLE: B.A. in Biological SciencesCONCENTRATION TITLE: N/A**FRESHMAN YEAR**

<i>Fall Semester</i>	<i>Credits</i>	<i>Spring Semester</i>	<i>Credits</i>
BIO 181 Intro Bio: Ecol, Evol, Biodiv	4 (CP)	BIO 183 Intro Bio: Cell & Molecular	4 (CP)
CH 101 Chemistry-A Molecular Sci.	3	² Organic Chemistry and Lab	4
CH 102 General Chemistry Lab	1	⁴ ENG 101	4
LSC 101 Critical & Creative Life Sci	2	GEP Elective*	3
¹ Calculus	3	GEP Health and Exercise Studies*	1
³ LSC 103 Exploring Life Sci Disciplines	1		
	<i>Total: 14</i>		<i>Total: 16</i>

SOPHOMORE YEAR

<i>Fall Semester</i>	<i>Credit</i>	<i>Spring Semester</i>	<i>Credit</i>
⁵ Statistics	3	⁷ Life Science Elective	3
⁶ Advanced Communication Requirement	3	⁷ Life Science Elective	4 3
⁷ Life Science	3	⁸ Cross Discipline Elective (Advised)	3
GEP Elective*	3	GEP Elective*	3
⁹ Free Elective	3	⁹ Free Elective	3
	<i>Total: 15</i>		<i>Total: 16</i> 15

JUNIOR YEAR

<i>Fall Semester</i>	<i>Credit</i>	<i>Spring Semester</i>	<i>Credit</i>
¹⁰ PY 131 Conceptual Physics	4	⁷ Life Science Elective	3
¹¹ Experiential Learning Requirement	3	⁷ Life Science Elective	3
⁸ Cross Discipline Elective (Advised)	3	⁸ Cross Discipline Elective (Advised)	3
GEP Elective*	3	⁶ Advanced Communication Writing	3
⁹ Free Elective	3	Requirement	
		GEP Elective*	3
	<i>Total: 16</i>		<i>Total: 15</i>

SENIOR YEAR

<i>Fall Semester</i>	<i>Credit</i>	<i>Spring Semester</i>	<i>Credit</i>
⁷ Life Science Elective	3	⁷ Life Science Elective	3
⁷ Life Science Elective	3	⁸ Cross Discipline Elective (Advised)	3
⁸ Cross Discipline Elective (Advised)	3	⁹ Free Elective	3
⁸ Cross Discipline Elective (Advised)	3	⁸ Cross Discipline Elective (Advised)	3
GEP Elective*	3	GEP Health and Exercise Studies*	1
		BIO 481 Senior Capstone Project	1
	<i>Total: 15</i>		<i>Total: 14</i>

Minimum Credit Hours Required for Graduation: ~~121~~ **120**

Footnotes

A grade of C- or better is required in the following courses:

- LSC 101 Critical and Creative Thinking in the Life Sciences
- LSC 103 Exploring Life Science Disciplines
- BIO 181 Introductory Biology: Ecology, Evolution, and Biodiversity
- BIO 183 Introductory Biology: Cell and Molecular Biology
- CH 101 Chemistry – A Molecular Science
- CH 102 General Chemistry Lab
- ENG 101 Academic Writing & Research
- ³Calculus

IMPORTANT NOTES:

- Students should check with their adviser before electing to take any course with S/U grading if it is normally graded A-F. Up to 12 hours of Free Electives can be taken S/U.
- Student are responsible for determining the pre-requisites for any course they are interested in taking.
- Students interested in graduate school or professional school should check the courses required for admission to the programs to which they plan to apply.
- The B.A. in Biological Sciences cannot be used as a second major for many students already in a degree program in the life sciences – students interested in a second major should first check with the coordinator of their desired second major.

¹*Calculus alternatives (take one course)*

Students interested in taking more than one semester of calculus should start with either MA 131 or MA 141, because MA 121 does not serve as a pre-requisite for either MA 231 or MA 241. Additional semesters of calculus can be used toward Life Science Electives requirements.

- MA 121 Elements of Calculus
- MA 131 Calculus for Life and Management Sciences A (first of two-semester series)
- MA 141 Calculus I (first of three-semester series)

²*Organic chemistry alternatives (take one)*

CH 220 is a single semester organic chemistry course, with lab included. CH 221 is the first of a two semester sequence (with CH 223) in organic chemistry, with CH 222 serving as the lab. Students earning a B.A. in Biological Sciences can take either CH 220 or CH 221 plus CH 222 to meet their organic chemistry requirement. Students who wish to take two semesters of organic chemistry should NOT start with CH 220, but should take CH 221/222 and CH 223/224.

³*LSC 103 Exploring Life Science Disciplines*

LSC 103 deals with transition-to-college issues while exploring degree program options within the life sciences. If a student transfers into the B.A. in Biological Sciences after taking a similar course in another program, that course can be substituted for LSC 103 on the degree audit, an action initiated by the academic advisor.

⁴*ENG 101 and the General Education Program (GEP)*

All NC State students take 26 credit hours as part of the General Education Program (GEP). This includes ENG 101, which can be taken either the first or second semester of the first year, and ~~LS~~ **LSC** 101, which meets 2 credit hours of the Interdisciplinary Perspectives GEP requirement. For their GEP Elective(s) in the first year, students are encouraged to explore the GEP course lists (<http://oucc.ncsu.edu/gep-courses>) for Interdisciplinary Perspectives, Humanities, or Social Sciences and choose a course in which they are interested.

⁵*Statistics alternatives (take one course)*

ST 305
 ST 311
 ST/BUS 350

NOTE: Please replace the existing Footnote 6 with this:

⁶*Communication and Writing Requirement (take one course from each list, minimum 6 cr hrs)*

One course must be taken from a list of communication courses and one course must be taken from a list of advanced writing courses – select courses from the lists on your degree audit.

⁷*Life Science Electives (take a total of 25 24 credit hours)*

A total of 25 24 credit hours must be taken from the courses listed below on your degree audit. At least 19 18 of these hours must be at the 300 level or higher. With adviser approval, students can use a total of up to 3 hours of learning experience (e.g., ~~BIO~~ BSC 492, 493, 494) or honors research experience (BSC 498) toward Life Science Electives or toward ⁸Cross Discipline Electives (Advised) – whichever category the experience appropriately fits. Some experimental courses (295, 495, and 592) and graduate (500-) level courses may also be used as Life Science Electives, with adviser and departmental approval. Students should check the prerequisites and restrictions on courses in which they are interested.

⁸*Cross Discipline Electives -- Advised (take 21 credit hours)*

Students in the B.A. in Biological Sciences will identify a second discipline of interest in which to also focus their studies. These 21 credit hours will be planned by the student in consultation with their advisor and must be approved by the advisor and by the program. This second disciplinary focal area can be selected from a wide range of fields outside of the life sciences (see examples below). At least 15 of these hours must be at the 300 level or higher and the rest must be at the 200 level or higher. With adviser approval, students can use a total of up to 3 hours of learning experience (e.g., ~~BIO~~ BSC 492, 493, 494) or honors research experience toward ⁷Life Science Electives or toward Cross Discipline Electives – whichever category the experience appropriately fits. Some experimental courses (295, 495, and 592) and graduate (500-) level courses may also be used as Cross Discipline Electives, with adviser and program approval. Students should check the prerequisites and restrictions on courses in which they are interested. For example, most ELM courses are restricted to Elementary Education majors and therefore would be appropriate only to those with a second major in Elementary Education. Courses used to meet GEP requirements cannot also be used to meet Cross Discipline Electives requirements.

NOTE: This list is not to be coded into the degree audit.

ADN >199 (Art and Design)
 AES >199 (Agricultural and Environmental Systems)
 AFS >199 (Africana Studies)
 ANS >199 (Animal Science)
 ANT >199 (Anthropology)
 ARC >199 (Architecture)
 ARE >199 (Agricultural and Resource Economics)
 ARS >199 (Arts Studies)
 BAE >199 (Biological & Agricultural Engineering)
 BBS >199 (Bioprocessing)
 BEC >199 (Biomanufacturing Training & Education Center)

BIT	>199	(Biotechnology)
BMA	>199	(Biomathematics)
BME	>199	(Biomedical Engineering)
BUS	>199	(Business Management)
CE	>199	(Civil Engineering)
CH	>199	(Chemistry)
CHE	>199	(Chemical Engineering)
CL	>199	(Comparative Literature)
COM	>199	(Communication)
CS	>199	(Crop Science)
CSC	>199	(Computer Science)
DS	>199	(Design Studies)
EAC	>199	(Adult and Higher Education)
EC	>199	(Economics)
ECD	>199	(Counselor Education)
ECE	>199	(Electrical & Computer Engineering)
ECI	>199	(Curriculum, Instruction and Counselor Education)
ED	>199	(Education)
EDP	>199	(Educational Psychology)
EI	>199	(Entrepreneurship Initiative)
ELM	>199	(Elementary Education)
ELP	>199	(Educational Leadership and Policy Studies)
EMS	>199	(Mathematics, Science and Technology Education)
ENG	>199	(English)
ENT	>199	(Entomology)
ET	>199	(Environmental Technology)
FL*	>199	(Foreign Languages and Literatures)
FM	>199	(Feed Mill)
FOR	>199	(Forestry)
FS	>199	(Food Science)
FTD	>199	(Fashion and Textile Design)
FW	>199	(Fisheries and Wildlife Science)
GC	>199	(Graphic Communications)
GD	>199	(Graphic Design)
GEO	>199	(Geography)
GPH	>199	(Global Public Health)
GTI	>199	(Global Training Initiative)
HA	>199	(History of Art)
HI	>199	(History)
HS	>199	(Horticulture Science)
ID	>199	(Industrial Design)
IDS	>199	(Interdisciplinary Studies)
IS	>199	(International Studies)
LAR	>199	(Landscape Architecture)
LOG	>199	(Logic)
LPS	>199	(Leadership in the Public Sector)
MA	>199	(Mathematics)
MAE	>199	(Mechanical & Aerospace Engineering)
MEA	>199	(Marine, Earth, and Atmospheric Sciences)
MIE	>199	(Management, Innovation and Entrepreneurship)

MSE	>199	(Materials Science & Engineering)
MT	>199	(Medical Textiles)
MUS	>199	(Music)
NE	>199	(Nuclear Engineering)
NPS	>199	(Nonprofit Studies)
PA	>199	(Public Administration)
PCC	>199	(Polymer and Color Chemistry)
PHI	>199	(Philosophy)
PO	>199	(Poultry Science)
PP	>199	(Plant Pathology)
PRT	>199	(Parks, Recreation and Tourism Management)
PS	>199	(Political Science)
PSE	>199	(Paper Science Engineering)
PSY	>199	(Psychology)
PY	>199	(Physics)
REL	>199	(Religion)
SMT	>199	(Sustainable Materials Technology)
SOC	>199	(Sociology)
SSC	>199	(Soil Science)
ST	>199	(Statistics)
STS	>199	(Science, Technology, and Society)
SW	>199	(Social Work)
TC	>199	(Textile Chemistry)
TDE	>199	(Tech Engr & Des Educ)
TE	>199	(Textile Engineering)
TED	>199	(Technology Education)
THE	>199	(Theatre)
TMS	>199	(Textile Materials Science)
TOX	>199	(Toxicology)
TT	>199	(Textile Technology)
WGS	>199	(Women's and Gender Studies)
WPS	>199	(Wood and Paper Science)

⁹*Free Electives (take 12 credit hours)*

These electives cannot be remedial nor can they be taken at an elementary level after you have taken comparable coursework at a more advanced level.

¹⁰*Physics Alternatives*

PY 211 is a suitable substitute for PY 131.

¹¹*Experiential Learning Requirement*

Experiential Learning opportunities can take many forms, but should be relevant to a possible career path for the student. The out-of-class experience to be undertaken to meet this requirement must be approved in advance by the adviser and program director. It is the responsibility of the student to identify an opportunity, to make arrangements with a supervisor to pursue that opportunity, and to complete the contract necessary for credit to be awarded for the experience.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

Introduction to Writing: ENG 101 (4 credit hours with a C- or better)

Students must complete ENG 101 during their freshman year.

Mathematical Sciences (6 credit hours – one course with MA or ST prefix)

In this degree program, this GEP requirement is met through the Major course requirements.

Natural Sciences (7 credit hours – include one laboratory course or course with a lab)

In this degree program, this GEP requirement is met through the Major course requirements.

Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list. Some courses on this list will also meet the U.S. Diversity or Global Knowledge co-requisites.

Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Social Sciences course list. Some courses on this list will also meet the U.S. Diversity or Global Knowledge co-requisites.

Physical Education/Healthy Living (2 credit hours – at least one 100-level Fitness and Wellness Course)

Choose from the University approved GEP Physical Education/Healthy Living course list.

Additional Breadth - (3 credit hours)

Choose from the University approved GEP Humanities course list or the GEP Social Sciences course list or the GEP Visual & Performing Arts course list. Some courses on this list will also meet the U.S. Diversity or Global Knowledge co-requisites.

Interdisciplinary Perspectives (5 credit hours)

In this degree program, 2 credit hours are met through a Major course requirement. For the remaining 3 credit hours, choose from the University approved GEP Interdisciplinary Perspectives course list. Some courses on this list will also meet the U.S. Diversity or Global Knowledge co-requisites.

The following **Co-Requisites** must be satisfied to complete GEP requirements:

U.S. Diversity (USD)

*Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. **Global Knowledge (GK)***

*Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. **Foreign***

Language proficiency - Proficiency at the FL_102 level is required for graduation.

PROPOSED CURRICULUM REQUIREMENTS

Format B – GEP 2009

Degree Title: Bachelor of Arts in Biological Sciences (17BIOBA)
Current Degree Key: none
Effective Date: Summer 2015

MAJOR FIELD OF STUDY REQUIREMENTS:		
Required Courses/Groups/ Electives:	Credit Hours	GEP category, if applicable
Indicate if course or course groupings have a C-wall or MGPA requirement		List GEP category and hours satisfied by a Major requirement
Required Courses		
†LSC 101 Critical & Creative Thinking in the Life Sciences	2	Interdisciplinary Perspectives (2 hours)
†LSC 103 Exploring Life Science Disciplines	1	
†BIO 181 Introductory Biology I	4	Natural Sciences (4 hours)
†BIO 183 Introductory Biology II	4	Natural Sciences (3 hours)
†CH 101 Chemistry – A Molecular Science	3	
†CH 102 General Chemistry Lab	1	
² CH 220 Introductory Organic Chemistry and Lab (or CH 221/222)	4	
† ¹ MA 121 Elements of Calculus (or MA 131 or MA 141)	3	Mathematical Sciences (3 hours)
¹⁰ PY 131 Conceptual Physics (or PY 133 or PY 211)	4	
⁵ Statistics (ST 305 or ST 311 or ST/BUS 350)	3	Mathematical Sciences (3 hours)
†C- or better required in these courses		
⁶ Advanced Communication and Writing Requirement	6	Communication in the Major requirement
⁷ Life Science Electives (at least 19 18 hours at the 300 level or higher)	25 24	
⁸ Cross Discipline Electives (Advised) (at least 15 hours at the 300 level or higher)	21	
¹¹ Experiential Learning Requirement Senior Capstone Project (BIO 481)	3 1	
Free Electives:		
⁹ Free Electives	12	
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	97 96 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s): requirement met by Exploring Life Science Disciplines (above)		
Total credit hours under College Requirements:	0	

NCSIT GENERAL EDUCATION PROGRAM REQUIREMENTS		At least one of the following must be listed:
<p><i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category <u>may not be subset</u> to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i></p> <p>Specific courses should not be listed in any of the fields below other than ENG 101.</p>		<ol style="list-style-type: none"> 1 Choose course(s) from the University Approved GEP course list for this category. 2 Minimum requirements are satisfied by Major/College course requirements. 3 Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category. 4 Co-requisite is satisfied by a Major/College course requirement. 5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts. 6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	<i>Credit hours</i>	<i>How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)</i>
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	<i>Minimum requirements are satisfied by Major course requirements.</i>
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	<i>Minimum requirements are satisfied by Major course requirements.</i>
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) used to satisfy this requirement can also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	<i>Choose courses from the University-approved GEP course list for Humanities.</i>
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) used to satisfy this requirement can also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	<i>Choose courses from the University-approved GEP course list for Social Sciences.</i>
Additional Breadth (AB) (3 credits) (Choose approach that is <i>different from the approach of the Major</i>) An AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.	3	<i>Choose course(s) from the University-approved GEP course lists for the Humanities/Soc Sciences/Visual & Performing Arts</i>
Interdisciplinary Perspectives (5 credits) <i>Course(s) used to satisfy this requirement can also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	3	<i>Choose course from the University-approved GEP course list for Interdisciplinary Persp. LSC 101 meets the other 2 credit hours of this requirement.</i>
Physical Education/Healthy Living (2 credits) (Including one Fitness and Wellness course)	2	<i>Choose courses from the University-approved GEP course list for Physical Ed/Healthy Living.</i>
Total credit hours needed to complete GEP that are <u>not</u> satisfied as part of the Major/College requirements.	24 hours	
GEP Co-Requisites:		<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.</i>
U.S. Diversity co-requisite (USD)	n/a	<i>Choose course from the University-approved GEP course list for U.S. Diversity.</i>
Global Knowledge co-requisite (GK)	n/a	<i>Choose course from the University-approved GEP course list for Global Knowledge.</i>
Foreign Language Proficiency	n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:		Place an X in the credit hour box to indicate below that the requirement is " Satisfied by College/Program Requirements "
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements

Technology Fluency	X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	121 120 total hours	

NC STATE UNIVERSITY

TO: Office of the Dean for Academic and Student Affairs
 FROM: Lisa Parks, Director of Biological Sciences
 RE: updates to several concentrations within the BS in Biological Sciences
 DATE: 20 September 2018

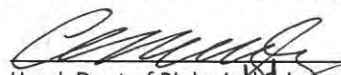
Proposed effective date: July 2019

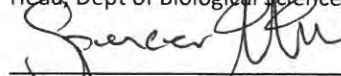
Proposed changes and justification

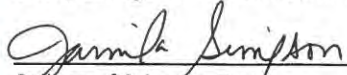
The BS in Biological Sciences at NC State has five paths to degree: the parent degree and four concentrations. This action proposes changes to bring the four concentrations into alignment with the mandated 120 credit hour requirement. The parent degree already requires 120 credit hours. Specific changes are listed in the table below.

Curriculum	Category	Change	Semester-by-Semester Edit
17BIOSCMCD	Free Electives	Reduce from 12 to 9 credit hours	Delete: Free Elective (3) from Spring Semester JR year
17BIOSCIPN	Additional Science & Math Electives	Reduce from 9 to 6 credit hours	Delete: Science & Math Elective (3) from Spring Semester JR year
17BIOSCHB	Free Electives	Reduce from 11 to 9 credit hours	Delete: Free Elective (3) from Spring Semester JR year
17BIOSCEEC	Free Electives	Reduce from 9 to 6 credit hours	Delete: Free Elective (3) from Spring Semester Senior year

SIGNATURES (AS REQUIRED):

 9/21/18
 Head, Dept of Biological Sciences Date

 9/25/18
 Chair, College Curriculum Committee Date

 9/28/18
 College of Sciences Dean Date

 Chair, University Courses & Curricula Committee Date

PROPOSED EFFECTIVE DATE: July 2019

 Dean, Academic and Student Affairs Date

APPROVED EFFECTIVE DATE: _____

College of Sciences
Department of Chemistry

ncsu.edu/chemistry

Campus Box 8204
Dabney Hall
2620 Yarbrough Drive
Raleigh, NC 27695-8204

P: 919.515.2296



September 6, 2018

MEMORANDUM

TO: University Courses and Curricula Committee

FROM: Dr. Jeremiah Feducia, Director of Undergraduate Programs, Department of Chemistry

RE: Minor Curriculum Action, Changes to Chemistry BS major (17CHEMBS).

Proposed Effective Date: Fall Semester, 2019

In compliance with the 120 credit hour requirement for undergraduate degree plans set by the UNC Board of Governors recently amended UNC Policy 400.1.5 (January 26, 2018), the Chemistry Department proposes to meet this limit by removing 1 cr from the Free Elective requirement for the Chemistry BS major (17CHEMBS).

SIGNATURES (AS REQUIRED):

Edmond F. Burch 9/7/18
Head, Department of Chemistry Date

Spence Mu 9/25/18
Chair, College Courses & Curricula Committee Date

Jamika Simpson 9/28/18
Dean, College of Sciences Date

Chair, University Courses & Curricula Committee Date

Dean, Academic and Student Affairs Date

EFFECTIVE DATE : _____

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: X Proposed: Proposed Effective Semester: **Fall 2017**

Degree/Plan Title: Bachelor of Science in Chemistry Concentration/Subplan Title: n/a

Plan SIS Code: 17CHEMBS Subplan SIS Code:

New Degree Audit required? (Y or N)

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 103 : General Chemistry I for Students in Chemical Sciences ^{1,B}	3 (CP)	CH 203 : General Chemistry II for Students in Chemical Sciences ^{1,B}	3 (CP)
CH 104 : General Chemistry Laboratory I for Students in Chemical Sciences ^{1,B}	1 (CP)	CH 204 : General Chemistry Laboratory II for Students in Chemical Sciences ^{1,B}	1 (CP)
MA 141 : Calculus I ^{1,A}	4	MA 241 : Calculus II ^{1,A}	4
ENG 101 : Academic Writing & Research ^{1,H}	4	PY 205 : Physics for Engineers and Scientists I ¹	3
COS 100 : Perspectives in Learning ^{2,G}	2	PY 206 : Physics for Engineers and Scientists I Laboratory ¹	1
GEP Health and Exercise Studies ^E	1	GEP Requirements ^D	3
Total: 15		Total: 15	
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 225 : Organic Chemistry I for Students in Chemical Sciences ¹	3 (CP)	CH 227 : Organic Chemistry II for Students in Chemical Sciences ¹	3
CH 226 : Organic Chemistry Laboratory I for Students in Chemical Sciences ¹	1	CH 228 : Organic Chemistry Laboratory II for Students in Chemical Sciences ¹	1
PY 208 : Physics for Engineers and Scientists II ¹	3 (CP)	CH315 : Quantitative Analysis ¹	3 (CP)
PY 209 : Physics for Engineers and Scientists II Laboratory ¹	1	CH316 : Quantitative Analysis Laboratory ¹	1 (CP)
MA 242 : Calculus III ¹	4	MA 341 : Applied Differential Equations I ¹	3
GEP Requirements ^D	3	GEP Health and Exercise Studies ^E	1
		GEP Requirements ^C	3
Total: 15		Total: 15	
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 431 : Physical Chemistry I ¹	3	CH 433 : Physical Chemistry II ¹	3
CH 401 : Systematic Inorganic Chemistry I ¹	3	CH 415 : Analytical Chemistry II ¹	3
CH 442 : Advanced Synthetic Techniques ¹	4	BCH 451 : Principles of Biochemistry ¹	4
Advanced Writing ^{1,3}	3	GEP Additional Breadth ^F	3
Advised Elective ⁴	3	Advised Elective ⁴	3
Total: 16		Total: 16	
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
Chemistry Advanced Elective ^{1,5}	3	Chemistry Advanced Laboratory Option ^{1,6}	4
CH 452 : Advanced Measurement Techniques I ¹	4	Chemistry Advanced Elective ^{1,5}	3
GEP Requirements ^C	3	GEP Interdisciplinary Perspectives ^G	3
Advised Elective ⁴	3	Advised Elective ⁴	3
Free Elective ⁷	3		
Total: 16		Total: 13	
Minimum Credit Hours Required for Graduation*: 121			

Major/Program Footnotes:

1. No grades below a C- are permitted.
2. E 115 may substitute for COS 100.
3. Advanced Writing course must be selected from ENG 214, ENG 281, ENG 287, ENG 288, ENG 289, ENG 316, ENG 323, ENG 331, ENG 332, ENG 333 or ENG 425. The Advanced Writing course may not be used to satisfy the GEP requirements; it is taken in addition to the GEP.
4. Advised electives are designed to allow students to concentrate in areas related to their academic goals. Courses used to fulfill this requirement are selected by the students after consultation and approval by their advisers or the Coordinator of Advising.
5. Choose among the following, CH 335, CH 403, CH 415, CH 441, or CH 7xx.
6. The advanced lab option is chosen from CH444 (Advanced Synthetic Techniques II) or CH454 (Advanced Measurement Techniques II).
7. Free electives courses cannot be CH 100, CH 111, MA 100, MA 101, MA 107, MA 108, MA 111, MA 121, MA 131, MA 231, PY 131, PY 211, PY 212, ENG 100. 100-level Foreign Language Courses (FL*, LAT, GRK, PER) can be used if not satisfying the language proficiency requirement.

*General Education Program (GEP) requirements and GEP Footnotes:

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 141, MA 241
- B. Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: CH 103, CH 104, CH 203
- C. Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:
- D. Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:
- E. Health and Exercise Studies** (2 credit hours – at least one 100-level HESF Course)
Choose from the University approved GEP Health and Exercise Studies course list.
- F. Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
____ Humanities/Social Sciences/Visual and Performing Arts
- G. Interdisciplinary Perspectives** (5 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: COS 100
- H. Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

- I. U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement:
- J. Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement:

Foreign Language proficiency - Proficiency at the FL_102 level is required for graduation.

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: x Proposed Effective Semester: **Spring 2019**

Degree/Plan Title: Bachelor of Science in Chemistry Concentration/Subplan Title: n/a

Plan SIS Code: 17CHEMBS Subplan SIS Code:

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 103 : General Chemistry I for Students in Chemical Sciences ^{1,B}	3 (CP)	CH 203 : General Chemistry II for Students in Chemical Sciences ^{1,B}	3 (CP)
CH 104 : General Chemistry Laboratory I for Students in Chemical Sciences ^{1,B}	1 (CP)	CH 204 : General Chemistry Laboratory II for Students in Chemical Sciences ^{1,B}	1 (CP)
MA 141 : Calculus I ^{1,A}	4	MA 241 : Calculus II ^{1,A}	4
ENG 101 : Academic Writing & Research ^{1,H}	4	PY 205 : Physics for Engineers and Scientists I ¹	3
COS 100 : Perspectives in Learning ^{2,G}	2	PY 206 : Physics for Engineers and Scientists I Laboratory ¹	1
GEP Health and Exercise Studies ^E	1	GEP Requirements ^D	3
Total: 15		Total: 15	
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 225 : Organic Chemistry I for Students in Chemical Sciences ¹	3 (CP)	CH 227 : Organic Chemistry II for Students in Chemical Sciences ¹	3
CH 226 : Organic Chemistry Laboratory I for Students in Chemical Sciences ¹	1	CH 228 : Organic Chemistry Laboratory II for Students in Chemical Sciences ¹	1
PY 208 : Physics for Engineers and Scientists II ¹	3 (CP)	CH315 : Quantitative Analysis ¹	3 (CP)
PY 209 : Physics for Engineers and Scientists II Laboratory ¹	1	CH316 : Quantitative Analysis Laboratory ¹	1 (CP)
MA 242 : Calculus III ¹	4	MA 341 : Applied Differential Equations I ¹	3
GEP Requirements ^D	3	GEP Health and Exercise Studies ^E	1
Total: 15		Total: 15	
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 431 : Physical Chemistry I ¹	3	CH 433 : Physical Chemistry II ¹	3
CH 401 : Systematic Inorganic Chemistry I ¹	3	CH 415 : Analytical Chemistry II ¹	3
CH 442 : Advanced Synthetic Techniques ¹	4	BCH 451 : Principles of Biochemistry ¹	4
Advanced Writing ^{1,3}	3	GEP Additional Breadth ^F	3
Advised Elective ⁴	3	Advised Elective ⁴	3
Total: 16		Total: 16	
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
Chemistry Advanced Elective ^{1,5}	3	Chemistry Advanced Laboratory Option ^{1,6}	4
CH 452 : Advanced Measurement Techniques I ¹	4	Chemistry Advanced Elective ^{1,5}	3
GEP Requirements ^C	3	GEP Interdisciplinary Perspectives ^G	3
Advised Elective ⁴	3	Advised Elective ⁴	3
Free Elective ⁷	3		
Total: 16		Total: 13	
Minimum Credit Hours Required for Graduation* : 121 120			

Major/Program Footnotes:

1. No grades below a C- are permitted.
2. E 115 may substitute for COS 100.
3. Advanced Writing course must be selected from ENG 214, ENG 281, ENG 287, ENG 288, ENG 289, ENG 316, ENG 323, ENG 331, ENG 332, ENG 333 or ENG 425. The Advanced Writing course may not be used to satisfy the GEP requirements; it is taken in addition to the GEP.
4. Advised electives are designed to allow students to concentrate in areas related to their academic goals. Courses used to fulfill this requirement are selected by the students after consultation and approval by their advisers or the Coordinator of Advising.
5. Choose among the following, CH 335, CH 403, CH 415, CH 441, or CH 7xx.
6. The advanced lab option is chosen from CH444 (Advanced Synthetic Techniques II) or CH454 (Advanced Measurement Techniques II).
7. Free electives courses cannot be CH 100, CH 111, MA 100, MA 101, MA 107, MA 108, MA 111, MA 121, MA 131, MA 231, PY 131, PY 211, PY 212, ENG 100. 100-level Foreign Language Courses (FL*, LAT, GRK, PER) can be used if not satisfying the language proficiency requirement.

*General Education Program (GEP) requirements and GEP Footnotes:

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 141, MA 241
- B. Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: CH 103, CH 104, CH 203
- C. Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:
- D. Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:
- E. Health and Exercise Studies** (2 credit hours – at least one 100-level HESF Course)
Choose from the University approved GEP Health and Exercise Studies course list.
- F. Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
_____ Humanities/Social Sciences/Visual and Performing Arts
- G. Interdisciplinary Perspectives** (5 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: COS 100
- H. Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

- A. U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement:
- B. Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement:

Foreign Language proficiency - Proficiency at the FL_102 level is required for graduation.

NC STATE UNIVERSITY

TO: Office of the Dean for Academic and Student Affairs

FROM: Betty Gardner, Director Undergraduate Genetics Program

RE: Updates to the 17GNBS curriculum

DATE: 4 September 2018

Proposed effective date: January 1, 2019

Proposed changes and justification

The Genetics Program proposes the following changes to the BS Genetics major. This action updates the Genetics major to

1. Restructure the degree audit to so that the total number of hours required for the degree will equal 120.
2. Minor changes to the Restricted Electives course list.

The 8 semester display on Format A and the Curriculum Requirements on Format B have been updated to reflect these changes.

Restructuring the Degree audit to adjust required credit hours to 120: The current BS Genetics degree has 124 credit hours. We propose to decrease the number of free electives by 4. This still leaves 8 or 9 free electives in the plan, depending on which cell biology/physiology option the student selects.

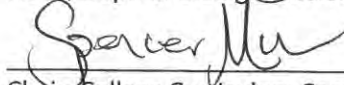
Updating course offerings in the restricted elective category: The course GN 456 was placed in both the Genetics Electives and Restricted Electives category. We propose deleting it from the Restricted Electives category since it fits better in the Genetics Elective category. We propose deleting PB 250 from the restricted electives list. Much of this course material is covered in the BIO 181/183 course series that students already take. Those students who are interested in a more focused Plant Biology course can still take the course as a free elective. Drop MEA 200 and add MEA 220. We had intended to add Marine Biology (MEA 220) to our curriculum in the last revision and accidentally added MEA 200 instead. Add Neurobiology (BIO 488) to the list of Restricted Electives. The proposed changes should have little impact on other departments.

Electives/Requirement	Action	Course	Title
Restricted Electives	Drop Courses	GN 456	Epigenetics, Development, and Disease
		PB 250	Plant Biology
		MEA 200	Oceanography
Restricted Electives	Add Courses	MEA 220	Marine Biology
		BIO 488	Neurobiology

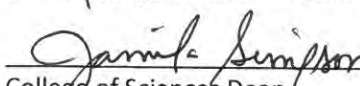
SIGNATURES (AS REQUIRED):

 9/21/18

Head, Dept. of Biological Sciences Date

 9/25/18

Chair, College Curriculum Committee Date

 9/28/18

College of Sciences Dean Date

Chair, University Courses & Curriculum Committee Date

Dean, Academic and Student Affairs Date

PROPOSED EFFECTIVE DATE: 1 January 2019

APPROVED EFFECTIVE DATE: _____

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Spring 2019

Degree/Plan Title: Bachelor of Science in Genetics

Concentration/Subplan Title:

Plan SIS Code: 17GNBS

Subplan SIS Code:

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
LSC 101 : Critical Creative Thinking Life Sci ^{1,6}	2	BIO 183 : Intro Bio: Cellular and Molecular ¹	4 (CP)
BIO 181 : Intro Biol: Ecol., Evol. Biodiversity ¹	4 (CP)	CH 221 : Organic Chemistry I ¹	3 (CP)
CH 101 : Chemistry A Molecular Science ¹	3 (CP)	CH 222 : Organic Chemistry I Lab ¹	1
CH 102 : General Chemistry Lab ¹	1	MA 231 : Calc. for Life & Mgt Sci B ^{1,2}	3 (CP)
MA 131 : Calculus for Life and Mgt Sci A ^{1,2}	3 (CP)	ENG 101: Academic Writing & Research ^{1,H}	4
LSC 103 : Exploring Opportunities Life Sci ¹	1		
GEP Health and Exercise Studies ^E	1		
	<i>Total: 15</i>		<i>Total: 15</i>
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 223 : Organic Chemistry II ¹	3 (CP)	GN 311 : Principles of Genetics ¹	4 (CP)
CH 224 : Organic Chemistry II Lab ¹	1	GN 312 : Elementary Genetics Laboratory ¹	1
ST 311 : Intro to Statistics ^{1,3}	3	CH 201 : Chemistry – A Quantitative Sci ¹	3 (CP)
Restricted Elective ^{1,4}	4	CH 202 : Quantitative Chemistry Lab ¹	1
GEP Social Science Req ^D	3	Restricted Elective ^{1,4}	4
GEP Health and Exercise Studies ^E	1	Communications Req ^{1,5}	3
	<i>Total: 15</i>		<i>Total: 16</i>
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
GN 421 : Molecular Genetics ¹	3	GN 425 : Advanced Genetics Laboratory ¹	2
BCH 451: Principles of Biochemistry ¹	4	GN 423 : Pop., Quant., Evol Genetics ¹	3
PY 211 : College Physics I ^{1,6}	4	PY 212 : College Physics II ^{1,6}	4
ENG 333: Comm. For Sci & Research ¹	3	GEP Social Science Req. ^D	3
GEP Humanities Requirement ^C	3	GEP Addtl. Breadth Req. ^F	3
	<i>Total: 17</i>		<i>Total: 15</i>
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
Genetics Research/Teaching Requirement ⁷	3	Genetics Electives ^{1,9}	6
Cell Biology/Physiology Requirement ^{1,8}	3/4	GEP Humanities Requirement ^C	3
GEP Interdisc. Persp. Req ^G	3	Free Elective	4
Free Elective	5/4		
	<i>Total: 14</i>		<i>Total: 13</i>
Minimum Credit Hours Required for Graduation ^{*I,J,K} : 120			

Major/Program Footnotes:

1. A minimum grade of C- is required in these courses.
2. MA 141 and MA 241 may be substituted for the MA 131 and MA 141 requirements, respectively. Please note that MA 131 does not satisfy the prerequisites for MA 241.
3. ST 371 may be taken instead of ST 311 and is recommended for students with interests in computational areas. Please see an advisor to discuss your options.
4. Student must select at least 8 hours from the Restricted Electives options in the degree audit.
5. This course must be selected from the following courses: COM 110 Public Speaking, COM 112 Interpersonal Communications or COM 211 Argumentation and Advocacy.
6. PY 205 and PY 208 may be substituted for PY 211 and PY 212. PY 205 and PY 208 are calculus-based and may require the MA 141 and MA 241 series of Mathematics (see footnote 1). PY 201 and PY 202 also may be substituted for PY 211 and PY 212. PY 201 and PY 202 are calculus-based, require the MA 141 and MA 241 series.
7. Student must select one course from the Genetics Research/Teaching Requirement options in the degree audit. A grade of "S" is required in this course.
8. Student must select at least 3 hours from the Cell Biology/Physiology Requirement options in the degree audit.
9. Student must select 6 hours from the Genetics Electives options in the degree audit.

Graduate requirements include: Students must have a 2.0 overall GPA.

*General Education Program (GEP) requirements and GEP Footnotes:

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
In Genetics, this GEP requirement is met through the Major course requirements.
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
In Genetics, this GEP requirement is met through the Major course requirements.
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list . Some courses on this list will also meet the U.S. Diversity or Global Knowledge co-requisites.
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list. Some courses on this list will also meet the U.S. Diversity or Global Knowledge co-requisites.
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
X Humanities/Social Sciences/Visual and Performing Arts
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: LSC 101 meets 2 credit hours of this requirement.
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity** (USD)
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite.
- J. **Global Knowledge** (GK)
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite.
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS

Format B

<u>Degree/Plan Title:</u> Bachelor of Science in Genetics	<u>Plan SIS Code:</u> 17GNBS
<u>Concentration/Subplan Title:</u>	<u>Subplan SIS Code:</u>
<u>Indicate requirements status:</u> Current: Proposed: X	<u>Proposed Effective Semester:</u> Spring 2019
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:	Credit Hours	GEP category, if applicable
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
Advanced Writing and Communication * ENG 333 Comm. for Science and Research Communications Requirement (Select from COM 110, COM 112 or COM 211)	3 3	
*Mathematical Sciences and Physics * MA 131 Calculus for Life and Mgt Sci A * MA 231 Calculus for Life and Mgt Sci B * ST 311 Introduction to Statistics * PY 211 College Physics I * PY 212 College Physics II	3 (CP) 3 (CP) 3 4 4	Mathematical Sciences, 3 Mathematical Sciences, 3
*Chemistry * CH 101 Chemistry A Molecular Science * CH 102 General Chemistry Lab * CH 201 Chemistry A Quantitative Science * CH 202 Quantitative Chemistry Lab * CH 221 Organic Chemistry I * CH 222 Organic Chemistry I Lab * CH 223 Organic Chemistry II * CH 224 Organic Chemistry II Lab	3 (CP) 1 3 (CP) 1 3 (CP) 1 3 (CP) 1	Natural Science, 3
*Required Life Sciences * LSC 101 Critical Creative Thinking Life Sciences * BIO 181 Intro Bio: Ecol, Evol, Biodiversity * BIO 183 Intro Bio: Cellular and Molecular * GN 311 Principles of Genetics * GN 312 Elementary Genetics Laboratory * GN 421 Molecular Genetics * GN 423 Pop, Quant, Evol Genetics * GN 425 Advanced Genetics Lab * BCH 451 Principles of Biochemistry * Cell Biology/Physiology Requirement (Select from BIO 240, BIO 245, BIO 414, BIO 416, BIO 421, PB 414, PB 421)	2 4 (CP) 4 (CP) 4 (CP) 1 3 3 2 4 3	Interdisciplinary Perspectives, 2 Natural Sciences, 4
**Genetics Research/Teaching Requirement ** Select one of GN 496, GN 497	3	

<p>*Genetics Electives * Select from GN 427, GN 434, GN 441, GN 451, GN 456, GN 541</p> <p>*Restricted Electives * Select from AEC 450, ANT 370, BIO 432, BIO 434, BIO 440, BIO 444, BIO 488, BIT 410, ENT/BIO 425, GN 456, MA 331, MA 341, MB 351/352, MB 441, MEA 220, MEA 200, PB 250, PB 400, PSY 430, TOX 401, ZO 350, ZO 402/403, ZO 410</p> <p>* C- or better required.</p> <p>** S/U grading with S required.</p>	<p>6</p> <p>8</p>	
<p><u>Concentration Courses/Groups/Electives:</u></p>		
<p><u>Free Electives:</u></p>	<p>9</p>	
<p>Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i></p>	<p>95 hours</p>	
<p>COLLEGE REQUIREMENTS:</p>		
<p><u>Orientation Course(s):</u> LSC 103</p>	<p>1</p>	
<p><u>Other:</u></p>		
<p>Total credit hours under College Requirements:</p>	<p>1 Hours</p>	

<u>NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</u>		At least one of the following must be listed:
<p><i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i></p> <p>Specific courses should not be listed in any of the fields below other than ENG 101.</p>		<ol style="list-style-type: none"> 1 Choose course(s) from the University Approved GEP course list for this category. 2 Minimum requirements are satisfied by Major/College course requirements. 3 Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category. 4 Co-requisite is satisfied by a Major/College course requirement. 5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts. 6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) <i>(At least 1 course with MA or ST prefix) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>		<i>(Choose statement 1, 2 or 3)</i> 2
Natural Sciences (7 credits) <i>(At least 1 lab course or course with a lab) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>		<i>(Choose statement 1, 2 or 3)</i> 2
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) <i>(Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	<i>(Choose statement 1, 2 or 3)</i> 1
Social Sciences (6 credits) <i>(Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	<i>(Choose statement 1, 2 or 3)</i> 1
Additional Breadth (3 credits) <i>(Choose approach that is different from the approach of the Major) Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.</i>	3	<i>(Choose statement 5 or 6)</i> 1
Interdisciplinary Perspectives (5 credits) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	3	<i>(Choose statement 1, 2 or 3)</i> 3
Health and Exercise Studies (2 credits) <i>(Including one Fitness and Wellness course)</i>	2	<i>Choose course(s) from the University Approved GEP course list for this category.</i>
Total credit hours needed to complete GEP that are not satisfied as part of the Major/College requirements.	24 hours	
GEP Co-Requisites:		<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.</i>
U.S. Diversity co-requisite (USD)	n/a	<i>(Choose statement 1 or 4)</i> 1
Global Knowledge co-requisite (GK)	n/a	<i>(Choose statement 1 or 4)</i> 1
Foreign Language Proficiency	n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:		Place an X in the credit hour box to indicate below that the requirement is "Satisfied by College/Program Requirements"
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements
Technology Fluency	X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.

NORTH CAROLINA STATE UNIVERSITY

HONORS PROGRAM ACTION FORM

DEPARTMENT/COLLEGE: Department of Chemistry (College of Sciences)

TITLE OF PROGRAM: Chemistry Honors Program

TYPE OF PROPOSAL:

New Program _____

Review _____

Revision in: _____

Admission Requirements _____

Graduation Requirements _____

Description _____

Discontinuation of Program _____

DATE OF LAST ACTION: _____

PROPOSED EFFECTIVE DATE: ***We would like this honors program to be effective for students who are invited into the program **Spring 2019**. Students who are current program participants will complete the program under the existing guidelines.*

ATTACH DOCUMENTS AS APPROPRIATE:

- Current Admissions Requirements
- _____ Current Graduation Requirements
- Current Catalog Description
- Proposed Revision of Program with Reasons
- _____ Number of Participants for last five years

CATALOG DESCRIPTION (limit to 150 words):

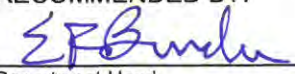
The Chemistry Honors Program offers students a challenging program of advanced study where they can develop research skills as well as written and oral communication skills. The program requirements include a minimum two semesters of independent research and 9 credits of honors/advanced coursework in chemistry or a related field. Participants will write an honors thesis and present their scholarly work at a professional meeting. Students majoring in chemistry or a joint degree program who have earned an overall GPA of at least 3.50 after completing 30 (but fewer than 65) credit hours at NC State will receive an invitation. Chemistry transfer students who have earned an overall GPA of 3.50 after completing 15 credit hours at NC State (and a total of 30 credit hours of college coursework) will be eligible after their first semester at NC State.

NAME OF PROGRAM DIRECTOR:

Ana Ison (Teaching Associate Professor, 328 Dabney Hall, aison@ncsu.edu)
(Rank, Address, email)

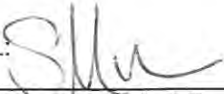
RECOMMENDED BY:

APPROVED EFFECTIVE DATE: _____

 9/5/18
Department Head Date
(if Departmental Program)

 9/10/18
College Honors Program Director Date
(if College Program)

APPROVAL:



10/3/18

Chair, College Courses & Curricula Committee
Or College Honors Program Committee

Date



10/3/18

College Dean

Date

Chair, University Courses & Curricula Committee

Date

Dean, Division of Academic & Student Affairs
(DASA)

Date

Chemistry Honors Program

Proposed Revision of Program with Reasons

Our goal is to update the current Chemistry Honors Program in order to increase the rigor of the program as well as to provide students with additional research training and opportunities to improve written and oral communication skills.

Current Admissions Requirements

The approved University-wide Guidelines for Honors Programs at NCSU require that a student complete a minimum of 9 credit hours of coursework drawn from at least two of the three following categories:

/Category /1: Special Courses in the following forms:

- a) courses open only to Honors students,
- b) Honors (H) sections of regularly offered courses,
- c) Honors options in regularly offered courses, or
- d) regularly offered courses that colleges or departments designate as appropriate for their honors programs;

/Category /2: Advanced Courses, Chemistry or Chemistry-related 500-level courses that are taken as electives or as substitutes for lower-level courses upon agreement with the instructor for that course;

/Category /3: Chemistry-Related Independent Studies that can take on a variety of forms: a senior thesis or paper, a project and project report, lab work and lab report, a group or individual tutorial guided by a faculty member in the Department of Chemistry.

Please note that we require at least 6 credits from Chemistry that cannot be simultaneously claimed as Honors credits at other Departments. We also require at least 3 credits of Research/Independent Study to qualify for our Program. The participant must maintain Bachelor's of Science Degree in Chemistry at the time of graduation.

Current Catalog Description

The Chemistry Honors Program is designed to encourage excellent students to pursue an undergraduate program that will challenge their abilities, expose them to research problems, and prepare them for graduate studies or other rewarding professional careers. Membership in the Chemistry Honors Program is limited to students who have done exceptionally well at NC State and who elect to satisfy additional academic requirements, specified below, that are consistent with the University wide guidelines for departmental honors programs. Departmental honors programs are separate from the University Honors Program and the University Scholars Program. Students majoring in chemistry or in a joint degree program involving chemistry who have an outstanding academic record are invited by the College of Physical and Mathematical Sciences to join the chemistry program.

Summary of changes:

- All honors students will now be required to complete at least two semesters of independent research instead of only one in the current program.
- All honors students will be required to complete an honors thesis.
- All honors students will be required to present their research findings in a formal setting. Students will have the opportunity to present at the NC State University Undergraduate Research Symposium or may choose to present at a local/regional/national professional meeting.
- Each honors student will receive regular mentoring as they prepare their research presentation and honors thesis. Mentoring will include meetings with the director during each semester to discuss progress and review of draft research presentation and honors thesis document.

We propose that the new Chemistry Honors Program be effective for students who will be invited into the program in Spring 2019. Students who are already in the program will continue under the guidelines of the existing departmental honors program.

Proposed Revision of Program and Admissions Requirements

Description

The Chemistry Honors Program offers students a challenging program of advanced study where they will develop research skills as well as written and oral communication skills. The program requirements include a minimum two semesters of independent research and 9 credits of honors/advanced coursework in chemistry or a closely related field. Participants are required to write an honors thesis and present their scholarly work at a local, regional, or national meeting. Invitations to join the Chemistry Honors Program are sent in the first 3 weeks of the Fall and Spring semesters and are based on GPA and number of credit hours completed at NC State, as described in the Admissions Requirements.

Admissions Requirements

Students majoring in chemistry or in a joint degree program who have earned an overall GPA of at least 3.50 after completing 30 (but fewer than 65) credit hours at NC State will receive an invitation. Chemistry transfer students who have earned an overall GPA of 3.50 after completing 15 credit hours at NC State (and a total of 30 credit hours of college coursework) will be eligible after their first semester at NC State.

Program Requirements

Independent Research

- Minimum two semesters of mentored research
- Enrollment requires a completed contract with the research mentor and a research plan to be submitted to the program director by week five of the semester in which the student enters the program

Honors Coursework (9 credit hours)

- Courses at a level of 300 or above from at least two of the following categories may be selected: 1) courses designated as honors or regularly-offered courses where student obtains an honors contract, 2) graduate level courses (500 or above), 3) independent research (CH499)
- Minimum of 6 credit hours must be taken in the Department of Chemistry
- If a course is taken outside of chemistry it must focus on a topic in chemistry or a closely related field (director approval required)
- Courses must be completed with a B- or better

Research Presentation and Honors Thesis

- Present research results at the NC State University Undergraduate Research Symposium or a local/regional/national professional meeting
- Complete an honors thesis during the last semester before graduation (thesis draft must be submitted no later than week five of graduating semester)

Honors Advising

- Meet with program director for progress updates (at least once per semester)
- Submit drafts of presentation and honors thesis for review

Graduation Requirements

- Complete the Program Requirements described above
- Maintain an overall GPA of 3.50 or higher
- Complete the graduation requirements for an undergraduate degree program offered by the Department of Chemistry



College of Sciences

Department of Marine, Earth,
and Atmospheric Sciences

Campus Box 8208 / 1125 Jordan Hall
Raleigh, NC 27695-8208

919.515.3711

www.meas.ncsu.edu

Memorandum

To: Mike Mullen, Vice Chancellor and Dean of the Division of Academic and Student Affairs

From: Carrie Thomas, Director of Undergraduate Programs, Marine, Earth & Atmospheric Sciences

Revision of Curriculum to meet UNC Policy 400.1.5

Proposed effective date: January 2019

Plan and subplan affected: 17MARSCBS -17MARSCBIO

List of revisions with reasons and impacts:

- 1) Allow students to double count required major courses for GEP requirements to reduce the number of credit hours taken for graduation to 120. Credits for MEA 100 (4) and COS 100 (2) will count toward the Interdisciplinary Perspectives GEP requirement.
- 2) Increase concentration electives from 15 credits to 16 credits to adjust for offset created by double counting.
- 3) Revise course requirements to reflect current catalog offerings:
 - A) Currently there is an ecology option between PB 360 Ecology and MEA 454 Marine Physical-Biological Interactions. The department does not plan to continue teaching MEA 454 which limits the option to PB 360.
 - B) COS 100 Perspectives on Learning (1 credit) is now COS 100 Science of Change (2 credits).
 - C) The computing option is updated to remove CSC 114 which is no longer in the catalog and to broaden options for students to include GIS 280, CSC 111 and CSC 113 in addition to CSC 112.
 - D) The organic chemistry lab is now a separate co-requisite with lecture sections. The organic chemistry elective is CH 220 or CH 221, but the lab is now listed separately.
 - E) MEA 495 Senior Seminar is now MEA 495 Junior Seminar.
- 4) Rearrange semester-by-semester plan to balance hours and to ensure pre-requisite sequencing.
 - A) ENG 101 is moved from the fall semester to the spring semester of the freshman year.

- B) MEA 100 Earth Systems Science is moved from the spring semester to the fall semester of the freshman year.
 - C) The CH 101/102 and CH 201/202 series is moved to the sophomore year. As a result of this shift, the organic chemistry option is shifted to fall of the junior year.
 - D) MEA 495 Junior Seminar is moved from the fall semester of the senior year to the spring semester of the junior year.
 - E) MEA 200/210 is moved to the spring semester of the freshmen year.
 - F) The GEP Humanities, Social Science and HES requirements are moved to balance hours.
 - G) The GEP Interdisciplinary Perspective requirements are removed from the spring semesters of the junior and senior years.
- 5) Update footnotes to reflect changes in the curriculum.

Attachments:

Consultations

Signature page

Current Semester-by-Semester Plan

Proposed Format A

Proposed Format B

Consultations

From: Eric Money <esmoney@ncsu.edu>
Date: Wed, Sep 5, 2018 at 1:10 PM
Subject: Re: consultation for curricular revisions
To: Carrie Thomas <cjthomas@ncsu.edu>
Cc: Ross Meentemeyer <rkmeente@ncsu.edu>

Hi Carrie,

Since I handle most of the curricular stuff at the undergraduate level right now for GIS, I'm happy to provide a statement. I'll let Ross chime in if he needs to add anything:

The Center for Geospatial Analytics approves of updating the computing option for students in this curriculum to GIS 280: Introduction to GIS. This course is a revised version of the previous dual-listed course GIS 410/510 which no longer exists. GIS 280 was created in order to be more accessible to undergraduate students and it will be able to accommodate these students and we look forward to providing them this option in their curriculum.

Let me know if you need something else.

Best,

- Eric

On Wed, Sep 5, 2018 at 12:50 PM Carrie Thomas <cjthomas@ncsu.edu> wrote:

Dear Ross,

I am revising the MEAS undergraduate curricula to align them with the new limit on credit hours. As I am revising them, I am updating our computing option. They are all dated in terms of the GIS course option, previously GIS 410 or 510. I am writing to ask if you could provide me a blanket email that I can attach to each supporting GIS 280 as a computing option for the following majors in MEAS:

BS in Geology

BS in Marine Science

BS in Natural Resources with a concentration in Marine and Coastal Resources.

This should not result in a change in the number of students taking GIS 280. They already take it and we sub it in for the old 410/510 requirement.

Thank you,
Carrie

**Signature Page
MEAS Curricular Revisions**

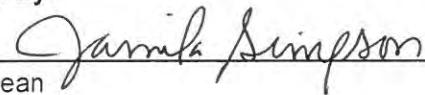
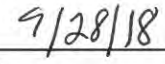
Endorsed By:

 _____ 
Head, Department/Program Date

Recommended By:

 _____ 
Chair, College Curriculum Committee Date

Endorsed By:

 _____ 
College Dean Date

Recommended By:

Chair, University Courses & Curricula Committee Date

Approved By:

Dean, (DASA) Date

Marine Sciences (BS): Biological Oceanography (17MARSCBS-17MARSCBIO)

Freshman Year

Fall Semester	Credit	Spring Semester	Credit
BIO 181 Intro Biology I ¹	4	BIO 183 Intro Biology II ¹	4
CH 101 Chemistry-Molecular Sci ^{8,1}	3	CH 201 Chemistry – Quant Sci ^{8,1}	3
CH 102 General Chemistry Lab 1 ^{8,3}	1	CH 202 Chemistry – Quant Lab 1 ³	1
ENG 101 Academic Writing & Research ^{1,4,H}	4	MA 231 or MA 241 Calculus II ^{A,1}	3-4
MA 131 or MA 141 Calculus I ^{A,1}	3-4	MEA 100 Earth System Science ^{2,6,5}	4
COS 100 Perspectives on Learning ⁵	1-2		15-16

Handwritten notes:
 - Red circles around CH 101, CH 102, ENG 101, MA 131/141, COS 100, CH 201, CH 202, MA 231/241, and MEA 100.
 - Arrows pointing from CH 101, CH 102, and ENG 101 to the Spring semester column with the note "move to Fall yr" and "more to Fall yr".
 - An arrow pointing from MA 131/141 to the Spring semester column with the note "move to sp fr year".
 - An arrow pointing from COS 100 to the Spring semester column with the note "move to sp Soph yr".
 - "14-15" and "16-17" written near COS 100.
 - "Science of Change B, 4" written near COS 100.

Sophomore Year

Fall Semester	Credit	Spring Semester	Credit
Botany Elective ^{2,4}	4	BIO 350 Animal Phylogeny & Diversity ²	4
MEA 200 Intro to Oceanography ²	3	GEP Humanities Requirement ^C	3
MEA 210 Oceanography Lab ²	1	MEA 250 Intro to Coastal Environments ²	3
Organic Chemistry Elective ^{3,4}	4	PY 212 or PY 208 Physics for Engineers & Scientists II ³	3
PY 205 Physics for Engineers & Scientists I or PY 211 ³	3	PY 209 Physics for Engineers & Scientists II Lab 1	
PY 206 Physics for Engineers & Scientists I Lab or PY 211 ¹	1		

Handwritten notes:
 - Red circles around MEA 200, MEA 210, Organic Chemistry Elective, and GEP Humanities Requirement.
 - An arrow pointing from Organic Chemistry Elective to the Spring semester column with the note "move to Fall yr".
 - An arrow pointing from GEP Humanities Requirement to the Spring semester column with the note "move to sp jr year".
 - "15-16" written near PY 205.
 - "14-15" written near PY 209.

Junior Year

Fall Semester	Credit
Concentration Elective ^{2,9}	4
MEA(BIO) 449 Bio Oceanography ²	3
MEA 460 Physical Oceanography ²	3
HES_*** Health & Exercise Studies Course^E	1
GEP Social Sciences Reqt.^D	3
CH 222 Organic Lab	1
	14

Summer

Summer Semester	Credit
MEA 459 Coastal Processes ²	5

Senior Year

Fall Semester	Credit
Advanced Writing Elective ^{3,10}	3
Concentration Elective ^{2,9}	4
Ecology Elective ^{2,10} PB360 Ecology	3-4
GEP Humanities Requirement ^C	3
MEA 495 Senior Seminar	1
	14-15

Spring Semester	Credit
Concentration Elective ^{2,9}	4
GEP Interdisc. Persp. Req.^G	3
HES_*** Health & Exercise Studies Course ^E	1
MEA 462 Obser. Methods & Data ²	3
Statistical Science Option ^{3,12}	3
	14

Spring Semester	Credit
Concentration Elective ^{2,9}	3
Concentration Elective ^{2,9}	5
Computer Science Option ^{3,11}	3
GEP Addtl. Breadth Reqt. ^F	3
GEP Interdiscip. Persp. Reqt.^G	2-3
GEP Social Sciences Reqt. ^D	3
	14-15

Minimum Credit Hours Required for Graduation*^{I,J,K}:

122 → 120

move to Spring year

move to fall for yr

move to fall for yr

delete

delete

• Major/Program Footnotes

1. Grade of C- or higher required in BIO 181, 183; CH 101, 201; ENG 101; MA 131/141, 231/241; PY 205/211.
2. No more than one D will be accepted in MEA core courses and concentration courses.
3. No more than one D will be accepted in other basic math or science courses.
4. ~~ENG 101 will not be available for all students in fall of their freshman year. Students not enrolled in ENG 101 should register for this course the following fall, and substitute a GEP Social Sciences Requirement in their first semester.~~ delete
4. E 115 may substitute for COS 100.
6. ~~Majors should register for the honors lab section.~~ delete
5. 7. CH 220 or CH 221, and CH 222 for those students who plan to take additional chemistry or biochemistry. CH 221/115
6. 8. PB 200 or PB 250.
7. 9. Concentration electives to be selected as a group in consultation with advisor, based on career goals.
10. ~~ME A 454 or BIO/PB 360.~~ delete
8. 11. ~~CSC 112 or CSC 114.~~ GIS 280, CSE 111, CSC 112, or CSC 113
9. 12. Any Statistics course at the 300 level.
10. 13. Advanced Writing Elective must be selected from ENG 331, ENG 332, and ENG 333. This satisfies the Communication in the Major Co-Requisite.

* General Education Program (GEP) requirements and GEP Footnotes

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <https://oucc.dasa.ncsu.edu/general-education-program/>.

A. Mathematical Sciences (6 credit hours; one course with MA or ST prefix)

Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 141, MA 241, MA 131, MA 231

B. Natural Sciences (7 credit hours; include one laboratory course or course with a lab)

Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: CH 101, CH 102, CH 201

C. Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none

D. Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none

E. Health & Exercise Studies (2 credit hours; at least one 100-level Fitness and Wellness Course)

Choose from the University approved GEP Health & Exercise Studies course list.

F. Additional Breadth (3 credit hours to be selected from the following checked University approved GEP course lists)

Humanities/Social Sciences/Visual and Performing Arts

G. Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none COS 100, MEA 100

H. Introduction to Writing (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements

I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: none

J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: none MEA 100

K. Foreign Language proficiency Proficiency at the FL_102 level is required for graduation.

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Spring 2019

Degree/Plan Title: BS in Marine Science

Concentration/Subplan Title: Biological Oceanography

Plan SIS Code: 17MARSCBS

Subplan SIS Code: 17MARSCBIO

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
BIO 181 Intro Biology I ¹	4 CP	BIO 183 Intro Biology II ¹	4
COS 100 Science of Change ^{G, 4}	2	ENG 101 Academic Writing & Research ^{1,H}	4
HESF 1** Health & Exercise Studies Course ^E	1	MEA 200 Intro to Oceanography ²	3 CP
MA 131 or MA 141 Calculus I ^{A,1}	3-4 CP	MEA 210 Oceanography Lab ²	1
MEA 100 Earth System Science ^{2, G, J}	4	MA 231 or MA 241 Calculus II ^{A,1}	3-4
	<i>Total:14-15</i>		<i>Total:15-16</i>
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
Botany Elective ^{2,6}	4	BIO 350 Animal Phylogeny and Diversity ²	4
CH 101 Chemistry-Molecular Sci ^{B,1}	3 CP	CH 201 Chemistry - Quant Sci ^{B,1}	3
CH 102 General Chemistry Lab 1 ^{B,3}	1	CH 202 Chemistry – Quant Lab 1 ³	1
GEP Social Sciences Requirement ^D	3	MEA 250 Intro to Coastal Environments ²	3
PY 211, or PY 205 and PY 206 ¹	4	PY 212, or PY 208 and PY 209 ³	4
	<i>Total:15</i>		<i>Total:15</i>
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
Concentration Elective ^{2,7}	4	Concentration Elective ^{2,7}	3
Organic Chemistry Elective ^{2,5}	3	GEP Humanities Requirement ^C	3
CH 222 Organic Chemistry Lab	1	HES_*** Health & Exercise Studies Course ^E	1
MEA 449 Bio Oceanography ²	3	MEA 462 Obser. Methods & Data ²	3
MEA 460 Physical Oceanography ²	3	MEA 495 Junior Seminar	1
	<i>Total:14</i>	Statistical Science Option ^{3,9}	3
	<i>Total:14</i>		<i>Total:14</i>
SUMMER SESSION I			
MEA 459 Coastal Processes ² 5 cr.			
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
Advanced Writing Elective ¹⁰	3	Concentration Elective ^{2,7}	3
Concentration Elective ^{2,7}	3	Concentration Elective ^{2,7}	3
PB 360 Ecology ²	4	Computer Science Option ^{3,8}	3
GEP Humanities Requirement ^C	3	GEP Additional Breadth Requirement ^F	3
	<i>Total:13</i>	GEP Social Sciences Requirement ^D	3
	<i>Total:13</i>		<i>Total:15</i>
Minimum Credit Hours Required for Graduation [*] : 120			

Major/Program Footnotes:

1. Grade of C- or higher required in BIO 181, 183; CH 101, 201; ENG 101; MA 131/141, 231/241; PY 211/205.
2. No more than one D will be accepted in MEA core courses and concentration courses.
3. No more than one D will be accepted in other basic math or science courses.
4. E115 may substitute.
5. CH 220 or CH 221. CH 221 is for those students who plan to take additional chemistry or biochemistry.
6. PB 200 or PB 250.
7. Concentration electives to be selected as a group in consultation with advisor, based on career goals.
8. GIS 280, CSC 111, CSC 112 or CSC 113.
9. Any Statistics course at the 300 level.

10. Advanced Writing Elective must be selected from ENG 331, ENG 332, and ENG 333. This satisfies the Communication in the Major Co-Requisite.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 131, MA 141, MA 231, MA 241**
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101, CH 102, CH 201**
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **none**
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **none**
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **COS 100, MEA 100**
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **none**
- J. **Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **MEA 100**
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS

Format B

<u>Degree/Plan Title:</u> BS in Marine Science	<u>Plan SIS Code:</u> 17MARSCBS
<u>Concentration/Subplan Title:</u> Biological Oceanography	<u>Subplan SIS Code:</u> 17MARSCBIO
<u>Indicate requirements status:</u> Current: Proposed: Y	<u>Proposed Effective Semester:</u> Spring 2019
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:	Credit Hours	GEP category, if applicable
<i>Required Courses/Groups/ Electives:</i>		
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
<u>CORE COURSES/MARINE SCIENCE</u>		
MEA 100 EARTH SYS SCIENCE	4	Interdisciplinary Perspectives 4 hours; Satisfies the Global Knowledge Co-Requisite
MEA 200 INTRO OCEANOGRAPHY	3 CP	
MEA 210 OCEANOGRAPHY LAB	1	
MEA 250 INTRO TO COASTAL ENVIRONMENTS	3	
MEA 459 COASTAL PROCESSES	5	Satisfies the Technology Fluency Co-Requisite
MEA 460 PRIN PHYS OCEANOGRAPHY	3	
MEA 462 METHODS MARINE PY	3	
MEA 495 JUNIOR SEMINAR	1	
<u>BASIC MATH & SCIENCES</u>		
CH 101 CHEM MOLECULAR SCI (C-wall)	3 CP	Natural Science 3 hours
CH 102 GEN CHEM LAB	1	Natural Science 1 hours
CH 201 CHEM-A QUANTI SCI (C-wall)	3	Natural Science 3 hours
CH 202 QUANT CHEM LAB	1	
PY 211 or (PY 205 and PY 206) PHYSICS I (C-wall)	4	
PY 212 or (PY 208 and PY 209) PHYSICS II	4	
MA 131 or MA 141 CALCULUS I (C-wall)	3-4 CP	Mathematics 3 hours
MA 231 or MA 241 CALCULUS II (C-wall)	3-4	Mathematics 3 hours
STATISTICAL SCIENCE OPTION: any ST 3XX	3	
COMPUTER SCIENCE OPTION: GIS 280, CSC 111, CSC 112 OR CSC 113	3	
<u>Concentration Courses/Groups/Electives:</u>		
BIO 181 INTRO BIOLOGY I (C-wall)	4 CP	
BIO 183 INTRO BIOLOGY II (C-wall)	4	
ORGANIC CHEMISTRY (CH 220 or CH 221)	3	
CH 222 ORGANIC CHEMISTRY LAB	1	
BOTANY ELECTIVE (PB 200 or PB 250)	4	
CONCENTRATION ELECTIVES (no course pattern)	16	
PB 360 ECOLOGY	4	
MEA 449 PRIN BIOL OCEANOGRAPHY	3	
BIO 350 ANIMAL PHYLOGENY AND DIVERSITY	4	

No more than one D will be allowed in MEA core courses and concentration courses. No more than one D will be allowed in other basic math and science courses.		
Free Electives:		
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	94-96 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s): COS 100 (E 115 can substitute)	2	Interdisciplinary Perspectives 2hours
Other: ADVANCED WRITING ELECTIVE: ENG 331, ENG 332, or ENG 333	3	Satisfies Communication in the Major GEP co-requisite
Total credit hours under College Requirements:	5 Hours	

<u>NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</u>		<u>At least one of the following must be listed:</u>
<i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category <u>may not be subset</u> to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i>		1 Choose course(s) from the University Approved GEP course list for this category.
<i>Specific courses should not be listed in any of the fields below other than ENG 101.</i>		2 Minimum requirements are satisfied by Major/College course requirements.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) <i>Choose course(s) from the University Approved GEP course list for this category.</i>
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) <i>Choose course(s) from the University Approved GEP course list for this category.</i>
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.</i>	3	(Choose statement 5 or 6) <i>Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.</i>
Interdisciplinary Perspectives (5 credits) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
Health and Exercise Studies (2 credits) (Including one Fitness and Wellness course)	2	<i>Choose course(s) from the University Approved GEP course list for this category.</i>

Total credit hours needed to complete GEP that are <u>not</u> satisfied as part of the Major/College requirements.		21 hours	
GEP Co-Requisites:			<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.</i>
U.S. Diversity co-requisite	(USD)	n/a	<i>(Choose statement 1 or 4)</i> Choose course(s) from the University Approved GEP course list for this category.
Global Knowledge co-requisite	(GK)	n/a	<i>(Choose statement 1 or 4)</i> Co-requisite is satisfied by a Major/College course requirement.
Foreign Language Proficiency		n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:			Place an X in the credit hour box to indicate below that the requirement is "Satisfied by College/Program Requirements"
Communication in the Major (Advanced Communication)		X	Satisfied by College/Program Requirements
Technology Fluency		X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.		120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.



College of Sciences

Department of Marine, Earth,
and Atmospheric Sciences

Campus Box 8208 / 1125 Jordan Hall
Raleigh, NC 27695-8208

919.515.3711
www.meas.ncsu.edu

Memorandum

To: Mike Mullen, Vice Chancellor and Dean of the Division of Academic and Student Affairs

From: Carrie Thomas, Director of Undergraduate Programs, Marine, Earth & Atmospheric Sciences

Revision of Curriculum to meet UNC Policy 400.1.5

Proposed effective date: January 2019

Plan and subplan affected: 17MARSCBS -17MARSCCHM

List of revisions with reasons and impacts:

- 1) Allow students to double count required major courses for GEP requirements to reduce the number of credit hours taken for graduation to 120. Credits for MEA 100 (4) and COS 100 (2) will count toward the Interdisciplinary Perspectives GEP requirement.
- 2) Revise course requirements to reflect current catalog offerings:
 - A) COS 100 Perspectives on Learning (1 credit) is now COS 100 Science of Change (2 credits).
 - B) The computing option is updated to remove CSC 114 which is no longer in the catalog and to broaden options for students to include PY 251, CSC 111, CSC 113 and CSC 116 in addition to CSC 112.
 - C) CH 315 Quantitative Analysis was a 4 credit course. Now the lab is listed separately as CH 316 Quantitative Analysis Lab.
 - D) CH 442 Advanced Synthetic Techniques was listed as a 3 credit course. It is now 4 credits.
 - E) MEA 495 Senior Seminar is now MEA 495 Junior Seminar.
- 3) Rearrange semester-by-semester plan to balance hours and to ensure pre-requisite sequencing.
 - A) ENG 101 is moved from the fall semester to the spring semester of the freshman year.
 - B) MEA 100 Earth Systems Science is moved from the spring semester to the fall semester of the freshman year.
 - C) The physical chemistry sequence is shifted from the senior year to accommodate the pre-requisite requirement for CH 403. To balance this move MEA 473 and MEA 323 are shifted to the senior year.

- D) MEA 495 Junior Seminar is moved from the fall semester of the senior year to the spring semester of the junior year.
 - E) The GEP Interdisciplinary Perspective requirements are removed from the spring semesters of the junior and senior years.
- 4) Update footnotes to reflect changes in the curriculum.

Attachments:

Signature page
Current Semester-by-Semester Plan
Proposed Format A
Proposed Format B

Signature Page
MEAS Curricular Revisions

Endorsed By:

 _____ 20 Sept 2018
Head, Department/Program Date

Recommended By:

 _____ 9/25/18 SM
Chair, College Curriculum Committee Date

Endorsed By:

 _____ 9/28/18
College Dean Date

Recommended By:

Chair, University Courses & Curricula Committee Date

Approved By:

Dean, (DASA) Date

Marine Sciences (BS): Chemistry (17MARSCBS-17MARSCCHM)

Freshman Year

Fall Semester	Credit	Spring Semester	Credit
CH 101 Chem Molecular Sci ^{B,1}	3	CH 201 Chem Quant Sci ^{B,1}	3
CH 102 General Chem Lab ^{B,3}	1	CH 202 General Quant Lab ³	2
ENG 101 Academic Writing & Research ^{1,4,H}	4	MA 241 Calculus II ^{A,1}	4
MA 141 Calculus I ^{A,1}	4	MEA 100 Earth Systems Science ^{2,3,4,5}	4
HES_*** Health & Exercise Studies Course ^E	1	GEP Addtl. Breadth Reqt. ^F	3
COS 100 Perspectives on Learning ^{6,4}	1		
	14		15

Handwritten notes:
 - Red circle around ENG 101 and MA 141.
 - Red arrow from ENG 101 to MA 241 labeled "move to sp".
 - Red arrow from MA 141 to MEA 100 labeled "move to fall".
 - Red "12" next to COS 100.
 - Red "Science of Chemistry" written above COS 100.

Sophomore Year

Fall Semester	Credit	Spring Semester	Credit
CH 221 Organic Chemistry I ¹	3	CH 315 Quantitative Analysis ²	4 ³
CH 222 Organic Chem I Lab ²	1	CH 316 Quant Anal Lab ²	
CH 223 Organic Chemistry II ¹		CH 224 Organic Chem II Lab ²	3
MA 242 Calculus III ¹	4		1
MEA 200 Intro to Oceanography ²	3	MEA 250 Intro to Coastal Environments ²	3
MEA 210 Oceanography Lab ²	1	PY 208 Physics for Engineers & Scientists II ¹	3
PY 205 Physics for Engineers & Scientists I ¹	3	PY 209 Physics for Engineers & Scientists Lab II ³	1
PY 206 Physics for Engineers & Scientists I Lab ¹	1		
	16		15

Handwritten notes:
 - Red "4 3" next to CH 315.
 - Red "CH 316 Quant Anal Lab 2" written above CH 223.

Junior Year

Fall Semester	Credit	Spring Semester	Credit
CH 401 Syst Inorganic Chem I ²	3	CH 403 Syst Inorganic Chem II ²	3
CH 442 Adv Synthetic Tech ²	3 4	GEP Interdisc. Persp. Reqt.⁶	3 delete
MA 341 Differential Equations I ³	3	MEA 323 Earth Systems Chemistry ²	3
MEA 460 Physical Oceanography ²	3	MEA 462 Obser. Methods & Data Analysis ²	3
MEA 473 Chemical Oceanography ²	3	Statistical Science Option ^{3,4}	3

Summer

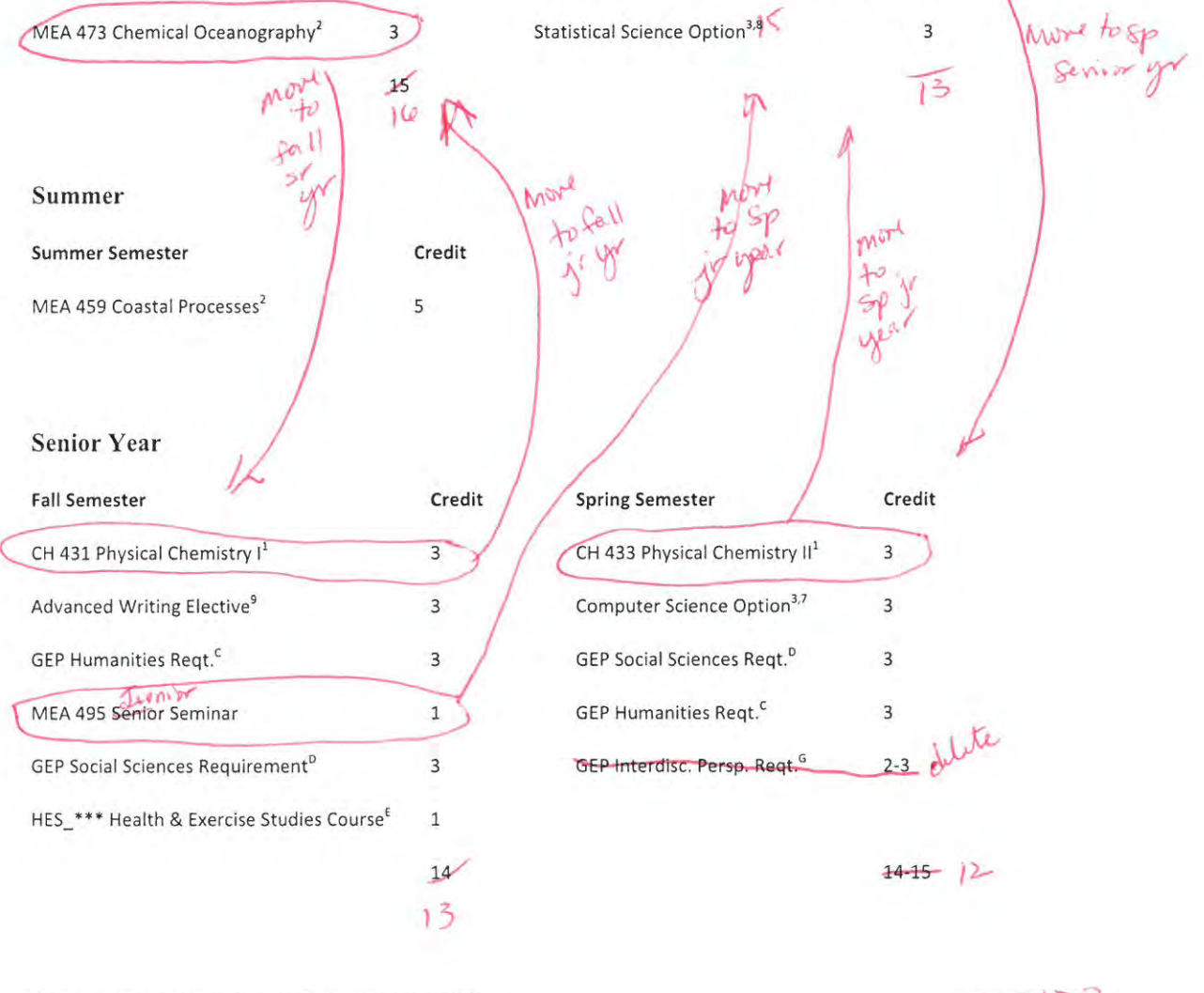
Summer Semester	Credit
MEA 459 Coastal Processes ²	5

Senior Year

Fall Semester	Credit	Spring Semester	Credit
CH 431 Physical Chemistry I ¹	3	CH 433 Physical Chemistry II ¹	3
Advanced Writing Elective ⁹	3	Computer Science Option ^{3,7}	3
GEP Humanities Reqt. ^C	3	GEP Social Sciences Reqt. ^D	3
MEA 495 Senior Seminar	1	GEP Humanities Reqt. ^C	3
GEP Social Sciences Requirement ^D	3	GEP Interdisc. Persp. Reqt.⁶	2-3 delete
HES_*** Health & Exercise Studies Course ^E	1		
	14		14-15
	13		12

Minimum Credit Hours Required for Graduation*^{I,J,K}:

~~123~~ 120



Major/Program Footnotes

1. Grade of C- or higher required in CH 101, 201, 221, 223, 431, 433; ENG 101; MA 141, 241, 242; PY 205/PY 206, 208/209. ~~PY 205, 206, 208, 209~~

2. No more than one D will be accepted in MEA core courses and concentration courses.

3. No more than one D will be accepted in other basic math or science courses.

4. ~~Substitute GEP Additional Breadth Requirement in fall if ENG 101 must be taken in spring due to course availability.~~ ~~delete~~

5. ~~Majors should register for the honors lab section.~~ ~~delete~~

4-6. E 115 may substitute for COS 100.

7. ~~CSC 112 or CSC 114~~ ~~CSC 111, CSC 112, CSC 113, CSC 116 or PY 257~~

5-8. Any Statistics course at the 300 level.

6-9. Advanced Writing Elective must be selected from ENG 331, ENG 332, and ENG 333. This satisfies the Communication in the Major Co-Requisite.

* General Education Program (GEP) requirements and GEP Footnotes

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <https://oucc.dasa.ncsu.edu/general-education-program/>.

A. Mathematical Sciences (6 credit hours; one course with MA or ST prefix)

Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 141, MA 241

B. Natural Sciences (7 credit hours; include one laboratory course or course with a lab)

Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: CH 101, CH 102, CH 201

C. Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none

D. Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none

E. Health & Exercise Studies (2 credit hours – at least one 100-level Fitness and Wellness Course)

Choose from the University approved GEP Health & Exercise Studies course list.

F. Additional Breadth (3 credit hours to be selected from the following checked University approved GEP course lists)

Humanities/Social Sciences/Visual and Performing Arts

G. Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none COS 100, MEA 100

H. Introduction to Writing (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements

I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: none

J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: none MEA 100

K. Foreign Language proficiency Proficiency at the FL_102 level is required for graduation.

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Spring 2019

Degree/Plan Title: BS in Marine Science

Concentration/Subplan Title: Chemistry

Plan SIS Code: 17MARSCBS

Subplan SIS Code: 17MARSCCHM

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 101 Chem Molecular Sci ^{B,1}	3 CP	CH 201 Chem Quant Sci ^{B,1}	3 CP
CH 102 General Chem Lab ^{B,3}	1 CP	CH 202 General Quant Lab ³	1 CP
COS 100 Science of Change ^{G,4}	2	MA 241 Calculus II ^{A,1}	4 CP
HESF 1** Health & Exercise Studies Course ^E	1	ENG 101 Academic Writing & Research ^{1,H}	4
MEA 100 Earth Systems Science ^{2,G,I}	4	GEP Additional Breadth Requirement ^F	3
MA 141 Calculus I ^{A,1}	4 CP		
	<i>Total: 15</i>		<i>Total: 15</i>
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 221 Organic Chemistry I ¹	3	CH 315 Quantitative Analysis ²	3
CH 222 Organic Chem I Lab ²	1	CH 316 Quantitative Analysis Lab ²	1
MA 242 Calculus III ¹	4	CH 223 Organic Chemistry II ¹	3
MEA 200 Intro to Oceanography ²	3 CP	CH 224 Organic Chem II Lab ²	1
MEA 210 Oceanography Lab ²	1	MEA 250 Intro to Coastal Environments ²	3
PY 205 Physics Engr & Sci I ¹	3 CP	PY 208 Physics Engr & Sci II ¹	3 CP
PY 206 Physics Engr & Sci Lab I ¹	1	PY 209 Physics Engr & Sci Lab II ¹	1
	<i>Total: 16</i>		<i>Total: 15</i>
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 401 Syst Inorganic Chem I ²	3	CH 403 Syst Inorganic Chem II ²	3
CH 442 Adv Synthetic Tech ²	4	CH 433 Physical Chemistry II ¹	3
CH 431 Physical Chemistry I ¹	3	MEA 462 Observ Methods & Data Analysis ²	3
MA 341 Differential Equations I ³	3	MEA 495 Junior Seminar	1
MEA 460 Physical Oceanography ²	3	Statistical Science Option ^{3,5}	3
	<i>Total: 16</i>		<i>Total: 13</i>
SUMMER SESSION I			
MEA 459 Coastal Processes ² 5 cr.			
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
Advanced Writing Elective ⁶	3	Computer Science Option ^{3,7}	3
GEP Humanities Requirement ^C	3	GEP Social Sciences Requirement ^D	3
GEP Social Sciences Requirement ^D	3	GEP Humanities Requirement ^C	3
HES_*** Health & Exercise Studies Course ^E	1	MEA 323 Earth Systems Chemistry ²	3
MEA 473 Chemical Oceanography ²	3		
	<i>Total: 13</i>		<i>Total: 12</i>
Minimum Credit Hours Required for Graduation*: 120			

Major/Program Footnotes:

1. Grade of C- or higher required in CH 101, 201, 221, 223, 431, 433; ENG 101; MA 141, 241, 242; PY 205, 206, 208, 209.
2. No more than one D will be accepted in MEA core courses and concentration courses.
3. No more than one D will be accepted in other basic math or science courses.
4. E 115 may substitute for COS 100.
5. Any Statistics course at the 300 level.
6. Advanced Writing Elective must be selected from ENG 331, ENG 332, and ENG 333. This satisfies the Communication in the Major Co-Requisite.

7. CSC 111, CSC 112, CSC 113, CSC 116 or PY 251.

General Education Program (GEP) requirements and GEP Footnotes:

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 141, MA 241
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: CH 101, CH 102, CH 201
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: COS 100, MEA 100
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: none
- J. **Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: MEA 100
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS**Format B**

<u>Degree/Plan Title:</u> BS in Marine Science	<u>Plan SIS Code:</u> 17MARSCBS
<u>Concentration/Subplan Title:</u> Chemistry	<u>Subplan SIS Code:</u> 17MARSCCHM
<u>Indicate requirements status:</u> Current: Proposed: X	<u>Proposed Effective Semester:</u> Spring 2019
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
<u>CORE COURSES/MARINE SCIENCE</u>		
MEA 100 EARTH SYS SCIENCE	4	Interdisciplinary Perspectives 4 hours, Satisfies the Global Knowledge Co-Requisite.
MEA 200 INTRO OCEANOGRAPHY	3 CP	
MEA 210 OCEANOGRAPHY LAB	1	
MEA 250 INTRO TO COASTAL ENVIRONS	3	
MEA 459 COASTAL PROCESSES	5	
MEA 460 PRIN PHYS OCEANOGRAPHY	3	
MEA 462 METHODS MARINE PY	3	Satisfies the Technology Fluency Co-Requisite
MEA 495 JUNIOR SEMINAR	1	
<u>BASIC MATH & SCIENCES</u>		
CH 101 CHEM MOLECULAR SCI (C-wall)	3 CP	Natural Science 3 hours
CH 102 GEN CHEM LAB	1 CP	Natural Science 1 hours
CH 201 CHEM-A QUANTI SCI (C-wall)	3 CP	Natural Science 3 hours
CH 202 QUANT CHEM LAB	1 CP	
PY 205 PHYSICS ENGR SCI I (C-wall)	3 CP	
PY 206 PHYSICS ENGR SCI I LAB	1	
PY 208 PHYSICS ENGR SCI II (C-wall)	3 CP	
PY 209 PHYSICS ENGR SCI II LAB	1	
MA 141 CALCULUS I (C-wall)	4 CP	Mathematics 4 hours
MA 241 CALCULUS II (C-wall)	4 CP	Mathematics 2 hours
MA 242 CALCULUS III (C-wall)	4	
MA 341 APPL DIFF EQ I	3	
STATISTICAL SCIENCE OPTION: Any ST 3** LEVEL	3	
COMPUTING OPTION: CSC 111, CSC 112, CSC 113, CSC 116 or PY 251	3	
<u>Concentration Courses/Groups/Electives:</u>		
CH 315 QUANTITATIVE ANALYSIS	3	
CH 316 QUANTITATIVE ANALYSIS LAB	1	
CH 221 ORG CHEM I (C-wall)	3	
CH 222 ORG CHEM I LAB	1	
CH 223 ORG CHEM II (C-wall)	3	
CH 224 ORG CHEM II LAB	1	
CH 401 SYST INORG CHEM I	3	
CH 442 ADV SYNTHETIC TECH	4	
CH 403 SYST INORG CHEM II	3	

CH 431 PHYSICAL CHEM I (C-wall)	3	
CH 433 PHYSICAL CHEM II (C-wall)	3	
MEA 323 EARTH SYSTEM CHEM	3	
MEA 473 PRIN CHEM OCEAN	3	
No more than one D will be allowed in MEA core courses and concentration courses.		
No more than one D will be allowed in other basic math and science courses.		
Free Electives:		
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	94 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s): COS 100 Science of Change (E 115 may substitute)	2	Interdisciplinary Perspectives 2 hours
Other: ADVANCED WRITING: ENG 331, ENG 332, or ENG 333	3	Satisfies Communication in the Major GEP co-requisite
Total credit hours under College Requirements:	5 Hours	

<u>NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</u>		At least one of the following must be listed:
<i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i>		1 Choose course(s) from the University Approved GEP course list for this category.
<i>Specific courses should not be listed in any of the fields below other than ENG 101.</i>		2 Minimum requirements are satisfied by Major/College course requirements.
		3 Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
		4 Co-requisite is satisfied by a Major/College course requirement.
		5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.
		6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	<i>(Choose statement 1, 2 or 3)</i> Minimum requirements are satisfied by Major/College course requirements.
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	<i>(Choose statement 1, 2 or 3)</i> Minimum requirements are satisfied by Major/College course requirements.
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	<i>(Choose statement 1, 2 or 3)</i> Choose course(s) from the University Approved GEP course list for this category.
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	<i>(Choose statement 1, 2 or 3)</i> Choose course(s) from the University Approved GEP course list for this category.
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.</i>	3	<i>(Choose statement 5 or 6)</i> Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.
Interdisciplinary Perspectives (5 credits) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	<i>(Choose statement 1, 2 or 3)</i> Minimum requirements are satisfied by Major/College course requirements.

Health and Exercise Studies (Including one <i>Fitness and Wellness</i> course)	(2 credits)	2	Choose course(s) from the University Approved GEP course list for this category.
Total credit hours needed to complete GEP that are <u>not</u> satisfied as part of the Major/College requirements.		21 hours	
GEP Co-Requisites:			<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.</i>
U.S. Diversity co-requisite	(USD)	n/a	<i>(Choose statement 1 or 4)</i> Choose course(s) from the University Approved GEP course list for this category.
Global Knowledge co-requisite	(GK)	n/a	<i>(Choose statement 1 or 4)</i> Co-requisite is satisfied by a Major/College course requirement.
Foreign Language Proficiency		n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:			Place an X in the credit hour box to indicate below that the requirement is "Satisfied by College/Program Requirements"
Communication in the Major (Advanced Communication)		X	Satisfied by College/Program Requirements
Technology Fluency		X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.		120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.



College of Sciences

Department of Marine, Earth,
and Atmospheric Sciences

Campus Box 8208 / 1125 Jordan Hall
Raleigh, NC 27695-8208

919.515.3711
www.meas.ncsu.edu

Memorandum

To: Mike Mullen, Vice Chancellor and Dean of the Division of Academic and Student Affairs

From: Carrie Thomas, Director of Undergraduate Programs, Marine, Earth & Atmospheric Sciences

Revision of Curriculum to meet UNC Policy 400.1.5

Proposed effective date: January 2019

Plan and subplan affected: 17MARSCBS -17MARSCGEO

List of revisions with reasons and impacts:

- 1) Allow students to double count required major courses for GEP requirements to reduce the number of credit hours taken for graduation to 120. Credits for MEA 100 (4) and COS 100 (2) will count toward the Interdisciplinary Perspectives GEP requirement.
- 2) Increase advised electives from 3 credits to 4 credits to adjust for offset created by double counting.
- 3) Revise course requirements to reflect current catalog offerings:
 - A) COS 100 Perspectives on Learning (1 credit) is now COS 100 Science of Change (2 credits).
 - B) The computing option is updated to remove CSC 114 which is no longer in the catalog and to broaden options for students to include GIS 280, PY 251, CSC 111, CSC 113, and CSC 116 in addition to CSC 112.
 - C) MEA 495 Senior Seminar is now MEA 495 Junior Seminar.
 - D) The statistics option is currently ST 301, ST 361 or ST 371, but ST 301 and ST 361 are no longer in the catalog. It has been revised to any statistics course at the 300 level so students can select the best course for their career goals and to allow for future modifications in the statistics course offerings.
- 4) Rearrange semester-by-semester plan to balance hours and to ensure pre-requisite sequencing.
 - A) ENG 101 is moved from the fall semester to the spring semester of the freshman year.
 - B) MEA 100 Earth Systems Science is moved from the spring semester to the fall semester of the freshman year.

- C) The CH 101/102 and CH 201/202 series is shifted to begin the spring semester of freshman year.
 - D) MEA 495 Junior Seminar is moved from the fall semester of the senior year to the spring semester of the junior year.
 - E) The computer science option is moved from spring semester sophomore year to the spring semester of the junior year.
 - F) The GEP Additional breadth requirement is moved from fall of the sophomore year to fall of the senior year.
 - G) The GEP Interdisciplinary Perspective requirements are removed from the spring semesters of the junior and senior years.
- 5) Update footnotes to reflect changes in the curriculum.

Attachments:

Consultations
Signature page
Current Semester-by-Semester Plan
Proposed Format A
Proposed Format B

Consultations

From: Spencer Muse <muse@ncsu.edu>
Date: Wed, Sep 5, 2018 at 2:08 PM
Subject: Re: consult for curricular revision
To: Carrie Thomas <cjthomas@ncsu.edu>

My understanding is that 380 is no longer going to be taught, period. I remember announcing this at a UAAC meeting some time ago, with the suggestion being to move students into either 311 or 370. (I'll follow up on this, and if its correct I'll submit a course action tp remove it from the catalog). ST 370 aligns more closely with the content of 380. The only negative to requiring 370 is that it makes it a bit trickier for students to take any additional ST courses. ST 370 is designed as a terminal class, so if they want to move on to a higher level class the next options are 312 (non-calculus, prerequisites of 311) or 372 (calculus, prerequisites of 371). We allow them to move on to either of those two options from 370, but with the explicit understanding that 370 does not cover all the prerequisite material and that they will have to do extra independent work to learn that material. This mainly comes into play when someone who has taken 370 wants to add a ST minor.

Let me know if you have any questions-
Spencer

Spencer Muse
muse@ncsu.edu

> On Sep 5, 2018, at 1:35 PM, Carrie Thomas <cjthomas@ncsu.edu> wrote:
>
> Dear Spencer,
> We are putting the finishing touches on or revisions to the BS in Meteorology, and we would like to adjust our statistics course requirement. Presently we require ST 380. We would like to offer a choice between ST 370 or ST 380. ST 380 is not regularly offered so this will allow students some flexibility. Would you please provide a consultation email I can attach to our revisions?
> Thanks,
> Carrie
>

From: Eric Money <esmoney@ncsu.edu>
Date: Wed, Sep 5, 2018 at 1:10 PM
Subject: Re: consultation for curricular revisions
To: Carrie Thomas <cjthomas@ncsu.edu>
Cc: Ross Meentemeyer <rkmeente@ncsu.edu>

Hi Carrie,

Since I handle most of the curricular stuff at the undergraduate level right now for GIS, I'm happy to provide a statement. I'll let Ross chime in if he needs to add anything:

The Center for Geospatial Analytics approves of updating the computing option for students in this curriculum to GIS 280: Introduction to GIS. This course is a revised version of the previous dual-listed course GIS 410/510 which no longer exists. GIS 280 was created in order to be more accessible to undergraduate students and it will be able to accommodate these students and we look forward to providing them this option in their curriculum.

Let me know if you need something else.

Best,

- Eric

On Wed, Sep 5, 2018 at 12:50 PM Carrie Thomas <cjthomas@ncsu.edu> wrote:

Dear Ross,

I am revising the MEAS undergraduate curricula to align them with the new limit on credit hours. As I am revising them, I am updating our computing option. They are all dated in terms of the GIS course option, previously GIS 410 or 510. I am writing to ask if you could provide me a blanket email that I can attach to each supporting GIS 280 as a computing option for the following majors in MEAS:

BS in Geology

BS in Marine Science

BS in Natural Resources with a concentration in Marine and Coastal Resources.

This should not result in a change in the number of students taking GIS 280. They already take it and we sub it in for the old 410/510 requirement.

Thank you,

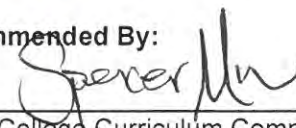
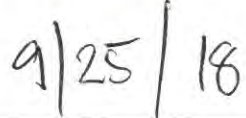
Carrie

**Signature Page
MEAS Curricular Revisions**

Endorsed By:

 _____  _____
Head, Department/Program Date

Recommended By:

 _____  _____
Chair, College Curriculum Committee Date

Endorsed By:

 _____  _____
College Dean Date

Recommended By:

_____ _____
Chair, University Courses & Curricula Committee Date

Approved By:

_____ _____
Dean, (DASA) Date

Marine Sciences (BS): Geology (17MARSCBS-17MARSCGEO)

Freshman Year

Fall Semester	Credit	Spring Semester	Credit
CH 101 Chem Molecular Sci ^{B,1}	3	CH 201 Chem Quant Sci ^{B,1}	3
CH 102 General Chem Lab ^{B,3}	1	CH 202 General Quant Lab ³	1
ENG 101 Academic Writing & Research ^{II,1,4}	4	MA 241 Calculus II ^{A,1}	4
MA 141 Calculus I ^{A,1}	4	MEA 100 Earth System Science ^{2,5,4}	4
MEA 101 Geology I: Physical ²	3	MEA 202 Geology II: Historical ²	3
MEA 110 Geology I Lab ²	1	MEA 211 Geology II: Lab ²	1
COS 100 Perspectives on Learning ^{0,4,4}	12		
	17		16
	14		

Sophomore Year

Fall Semester	Credit	Spring Semester	Credit
MA 242 Calculus III ³	4	Computer Sci Option ^{3,7}	3
MEA 200 Intro to Oceanography ²	3	MEA 250 Intro Coastal Env ²	3
MEA 210 Oceanography Lab ²	1	MEA 251 Intro Coastal Env Lab ²	1
MEA 410 Intro Mineralogy & Petrology ^{2,4}	4	MEA 450 Sed Petrol & Strat ²	4
GEP Addtl. Breadth Req. ^F	3	PY 205 Physics Engineers & Scientists I ¹	3
	15	PY 206 Physics Engineers & Scientists I Lab ¹	1
	16		15

Junior Year

Fall Semester	Credit	Spring Semester	Credit
MEA 460 Physical Oceanography ²	3	Advanced Writing Elective ^{12,5}	3
MEA 451 Structural Geology ²	4	GEP Interdisc. Persp. Req.^G	3
HES_*** Health & Exercise Studies Course ^E	1	HES_*** Health & Exercise Studies Course ^E	1
PY 208 Physics Engineers & Scientists II ³	4	MEA 462 Obser Methods & Data Analysis ²	3
PY 209 Physics Engineers & Scientists II Lab ³	1	Statistical Science Option ^{3,10,7}	3
GEP Social Sciences Req. ^D	3		
	15		13

Summer Session

Fall Semester	Credit
MEA 459 Coastal Processes ²	5

Senior Year

Fall Semester	Credit
GEP Humanities Reqt. ^C	3
MEA 411 Marine Sed Transport ²	3
MEA 570 Geological Oceanography ²	3
MEA 495 Senior Seminar <i>Move to Sp</i>	1
MEA Restricted Elective ^{2,8} <i>jr up</i>	3
	13
	15

Spring Semester	Credit
Advised Elective ^{2,11} <i>9</i>	3 <i>4</i>
Geophysics Option ^{2,8} <i>10</i>	3
GEP Humanities Reqt. ^C	3
GEP Social Sciences Reqt. ^D	3
GEP Interdisc. Persp. Reqt. ^G	2-3 <i>delete</i>
	14-15 <i>13</i>

-123 120

Minimum Credit Hours Required for Graduation^{*I,J,K}:

Major/Program Footnotes

- Grade of C- or higher is required in CH 101, 201; ENG 101; MA 141, 241; PY 205.
- No more than one D will be accepted in MEA core courses and concentration courses.
- No more than one D will be accepted in other basic math or science courses.
- ~~Substitute GEP Additional Breadth Requirement in fall if ENG 101 must be taken in the spring due to course availability. *delete*~~
- ~~Majors should register for the honors lab section. *delete*~~
- 4* E 115 may substitute for COS 100.
- 6* ~~CSC 112 or CSC 114~~ *CSC 111, CSC 112, CSC 113, CSC 114, PY 257 or GIS 280*
- 10* MEA 470 or MEA 471.
- 8* MEA Restricted Elective to be selected from MEA/BIO 449, MEA 467, or MEA 473.
- 7* One of the following: ST 301, ST 361, or ST 371. *Any statistics course at the 300 level*
- 9* Any MEA course at the 300 level or higher. Select in consultation with your advisor.
- 5* Advanced Writing Elective must be selected from ENG 331, ENG 332, and ENG 333. This satisfies the Communication in the Major Co-Requisite.

*** General Education Program (GEP) requirements and GEP Footnotes**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <https://oucc.dasa.ncsu.edu/general-education-program/>.

A. Mathematical Sciences (6 credit hours; one course with MA or ST prefix)

Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 141, MA 241

B. Natural Sciences (7 credit hours; include one laboratory course or course with a lab)

Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: CH 101, CH 102, CH 201

C. Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none

D. Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none

E. Health & Exercise Studies (2 credit hours; at least one 100-level Fitness and Wellness Course)

Choose from the University approved GEP Health & Exercise Studies course list.

F. Additional Breadth (3 credit hours to be selected from the following checked University approved GEP course lists)

X Humanities/Social Sciences/Visual and Performing Arts

G. Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none COS 100, MATH 100

H. Introduction to Writing (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements

I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: none

J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: none ~~ME A 100~~

K. Foreign Language proficiency Proficiency at the FL_102 level is required for graduation.

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Spring 2019

Degree/Plan Title: BS in Marine Science

Concentration/Subplan Title: Geology

Plan SIS Code: 17MARSCBS

Subplan SIS Code: 17MARSCGEO

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
COS 100 Science of Change ^{4,G}	2	CH 101 Chem Molecular Sci ^{1,B}	3 CP
MA 141 Calculus I ^{1,A}	4 CP	CH 102 General Chem Lab ^{3,B}	1
MEA 100 Earth Systems Science ^{2,G,I}	4	ENG 101 Academic Writing & Research ^{1,H}	4
MEA 101 Geology I: Physical ²	3 CP	MA 241 Calculus II ^{1,A}	4
MEA 110 Geology I Lab ²	1 CP	MEA 202 Geology II: Historical ²	3
		MEA 211 Geology II: Lab ²	1
	<i>Total: 14</i>		<i>Total: 16</i>
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 201 Chem Quant Sci ^{1,B}	3	MEA 250 Intro Coastal Environments ²	3
CH 202 General Quant Lab ³	1	MEA 251 Intro Coastal Environments Lab ²	1
MA 242 Calculus III ³	4	MEA 450 Sed Petrol & Strat ²	4
MEA 200 Intro to Oceanography ²	3 CP	PY 205 Physics Engr & Sci I ¹	3
MEA 210 Oceanography Lab ²	1	PY 206 Physics Engr & Sci Lab I ³	1
MEA 410 Intro Mineralogy & Petrology ²	4		
	<i>Total: 16</i>		<i>Total: 12</i>
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MEA 460 Physical Oceanography ²	3	Advanced Writing Elective ⁵	3
MEA 451 Structural Geology ²	4	Computer Science Option ^{3,6}	3
HESF 1** Health & Exercise Studies Course ^E	1	HES_ *** Health & Exercise Studies Course ^E	1
PY 208 Physics Engr & Sci II ³	3	MEA 462 Obser Methods & Data Analysis ²	3
PY 209 Physics Engr & Sci Lab II ³	1	MEA 495 Junior Seminar	1
GEP Social Sciences Requirement ^D	3	Statistical Science Option ^{3,7}	3
	<i>Total: 15</i>		<i>Total: 14</i>
SUMMER SESSION I			
MEA 459 Coastal Processes ² 5 cr.			
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
GEP Humanities Requirement ^C	3	Advised Elective ^{2,9}	4
GEP Additional Breadth Requirement ^F	3	Geophysics Option ^{2,10}	3
MEA 411 Marine Sediment Transport ²	3	GEP Humanities Requirement ^C	3
MEA 570 Geological Oceanography ²	3	GEP Social Sciences Requirement ^D	3
MEA Restricted Elective ^{2,8}	3		
	<i>Total: 15</i>		<i>Total: 13</i>
Minimum Credit Hours Required for Graduation*: 120			

Major/Program Footnotes:

- Grade of C- or higher is required in CH 101, 201; ENG 101; MA 141, 241; PY 205.
- No more than one D will be accepted in MEA core courses and concentration courses.
- No more than one D will be accepted in other basic math or science courses.
- E 115 may substitute for COS 100.
- Advanced Writing Elective must be selected from ENG 331, ENG 332, and ENG 333. This satisfies the Communication in the Major Co-Requisite.

6. GIS 280, CSC 111, CSC 112, CSC 113, CSC 116 or PY 251
7. Any statistics course at the 300 level.
8. MEA Restricted Elective to be selected from MEA/BIO 449, MEA 467, or MEA 473.
9. Any MEA course at the 300 level or higher. Select in consultation with your advisor.
10. MEA 470 or MEA 471.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 141, MA 241
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: CH 101, CH 102, CH 201
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: COS 100, MEA 100
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: none
- J. **Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: MEA 100
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS**Format B**

<u>Degree/Plan Title</u> : BS in Marine Science	<u>Plan SIS Code</u> : 17MARSCBS
<u>Concentration/Subplan Title</u> : Geology	<u>Subplan SIS Code</u> : 17MARSCGEO
<u>Indicate requirements status</u> : Current: Proposed: X	<u>Proposed Effective Semester</u> : Spring 2019
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
<u>CORE COURSES/MARINE SCIENCE</u>		
MEA 100 EARTH SYS SCIENCE	4	Interdisciplinary Perspectives 4 hours, Satisfies the Global Knowledge Co-Requisite.
MEA 200 INTRO OCEANOGRAPHY	3 CP	
MEA 210 OCEANOGRAPHY LAB	1	
MEA 250 INTRO TO COASTAL ENVIRONS	3	
MEA 459 COASTAL PROCESSES	5	
MEA 460 PRIN PHYS OCEANOGRAPHY	3	
MEA 462 METHODS MARINE PY	3	Satisfies the Technology Fluency Co-Requisite
MEA 495 JUNIOR SEMINAR	1	
<u>BASIC MATH & SCIENCES</u>		
CH 101 CHEM MOLECULAR SCI (C-wall)	3 CP	Natural Science 3 hours
CH 102 GEN CHEM LAB	1	Natural Science 1 hours
CH 201 CHEM-A QUANTI SCI (C-wall)	3	Natural Science 3 hours
CH 202 QUANT CHEM LAB	1	
PY 205 PHYSICS ENGR SCI I (C-wall)	3	
PY 206 PHYSICS ENGR SCI I LAB	1	
PY 208 PHYSICS EGR SCI II (C-wall)	3	
PY 209 PHYSICS EGR SCI II LAB	1	
MA 141 CALCULUS I (C-wall)	4 CP	Mathematics 4 hours
MA 241 CALCULUS II (C-wall)	4	Mathematics 2 hours
MA 242 CALCULUS III (C-wall)	4	
STATISTICAL SCIENCE OPTION: Any ST 3** LEVEL	3	
COMPUTING OPTION: GIS 280, CSC 111, CSC 112, CSC 113, CSC 116 or PY 251	3	
<u>Concentration Courses/Groups/Electives:</u>		
MEA 101 GEOLOGY I PHYSICAL	3 CP	
MEA 110 GEOLOGY I LABORAT	1 CP	
MEA 202 GEOLOGY II HISTOR	3	
MEA 211 GEOLOGY II LABORAT	1	
MEA 251 INTR COAST ENV LAB	1	
MEA 410 INTRO MIN PET	4	
MEA 411 MARINE SED TRANS	3	
MEA 450 INTR SED PET/STRAT	4	
MEA 451 STRUCTURAL GEOLOGY	4	

MEA 570 GEOLOGICAL OCEANOGRAPHY GEOPHYSICS OPTION (MEA 470 or MEA 471) ADVISED ELECTIVE (MEA > 299) RESTRICTED ELECTIVE (MEA/BIO 449, MEA 467 or MEA473)	3 3 4 3	
No more than one D will be allowed in MEA core courses and concentration courses. No more than one D will be allowed in other basic math and science courses.		
Free Electives:		
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	94 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s): COS 100 Science of Change (E 115 may substitute)	2	Interdisciplinary Perspectives 2 hours
Other: ADVANCED WRITING: ENG 331, ENG 332, or ENG 333	3	Satisfies Communication in the Major GEP co-requisite
Total credit hours under College Requirements:	5 Hours	

<u>NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</u>		At least one of the following must be listed:
<i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i>		1 Choose course(s) from the University Approved GEP course list for this category.
<i>Specific courses should not be listed in any of the fields below other than ENG 101.</i>		2 Minimum requirements are satisfied by Major/College course requirements.
		3 Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
		4 Co-requisite is satisfied by a Major/College course requirement.
		5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.
		6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) <i>Choose course(s) from the University Approved GEP course list for this category.</i>
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) <i>Choose course(s) from the University Approved GEP course list for this category.</i>
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.</i>	3	(Choose statement 5 or 6) <i>Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.</i>
Interdisciplinary Perspectives (5 credits) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>

Health and Exercise Studies (Including one <i>Fitness and Wellness</i> course)	(2 credits)	2	Choose course(s) from the University Approved GEP course list for this category.
Total credit hours needed to complete GEP that are <u>not</u> satisfied as part of the Major/College requirements.		21 hours	
GEP Co-Requisites:			<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.</i>
U.S. Diversity co-requisite	(USD)	n/a	<i>(Choose statement 1 or 4)</i> Choose course(s) from the University Approved GEP course list for this category.
Global Knowledge co-requisite	(GK)	n/a	<i>(Choose statement 1 or 4)</i> Co-requisite is satisfied by a Major/College course requirement.
Foreign Language Proficiency		n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:			Place an X in the credit hour box to indicate below that the requirement is "Satisfied by College/Program Requirements"
Communication in the Major (Advanced Communication)		X	Satisfied by College/Program Requirements
Technology Fluency		X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.		120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.



College of Sciences

Department of Marine, Earth,
and Atmospheric Sciences

Campus Box 8208 / 1125 Jordan Hall
Raleigh, NC 27695-8208

919.515.3711
www.meas.ncsu.edu

Memorandum

To: Mike Mullen, Vice Chancellor and Dean of the Division of Academic and Student Affairs

From: Carrie Thomas, Director of Undergraduate Programs, Marine, Earth & Atmospheric Sciences

Revision of Curriculum to meet UNC Policy 400.1.5

Proposed effective date: January 2019

Plan and subplan affected: 17MARSCBS -17MARSCPHY

List of revisions with reasons and impacts:

- 1) Allow students to double count required major courses for GEP requirements to reduce the number of credit hours taken for graduation to 120. Credits for MEA 100 (4) and COS 100 (2) will count toward the Interdisciplinary Perspectives GEP requirement.
- 2) Revise course requirements to reflect current catalog offerings:
 - A) COS 100 Perspectives on Learning (1 credit) is now COS 100 Science of Change (2 credits).
 - B) The computing option is updated to remove CSC 114 which is no longer in the catalog and to broaden options for students to include PY 251, CSC 111, CSC 113 and CSC 116 in addition to CSC 112.
 - C) ST 380 Probability & Statistics for Physical Sciences is no longer being taught, so ST 370 Probability & Statistics for Engineers replaces it.
 - D) MEA 495 Senior Seminar is now MEA 495 Junior Seminar.
- 3) Rearrange semester-by-semester plan to balance hours and to ensure pre-requisite sequencing.
 - A) ENG 101 is moved from the fall semester to the spring semester of the freshman year.
 - B) MEA 100 Earth Systems Science is moved from the spring semester to the fall semester of the freshman year.
 - C) The CH 101/102 and CH 201/202 series is shifted to the spring semesters of the freshman and sophomore years.
 - D) MEA 495 Junior Seminar is moved from the fall semester of the senior year to the spring semester of the junior year.

- E) A GEP Humanities requirement is moved from spring semester sophomore year to fall semester junior year.
 - F) The GEP Interdisciplinary Perspective requirements are removed from the fall semester of the junior year and spring semester of the senior year.
- 4) Update footnotes to reflect changes in the curriculum.

Attachments:

Consultations
Signature page
Current Semester-by-Semester Plan
Proposed Format A
Proposed Format B

Consultations

From: Spencer Muse <muse@ncsu.edu>
Date: Wed, Sep 5, 2018 at 2:08 PM
Subject: Re: consult for curricular revision
To: Carrie Thomas <cjthomas@ncsu.edu>

My understanding is that 380 is no longer going to be taught, period. I remember announcing this at a UAAC meeting some time ago, with the suggestion being to move students into either 311 or 370. (I'll follow up on this, and if its correct I'll submit a course action tp remove it from the catalog). ST 370 aligns more closely with the content of 380. The only negative to requiring 370 is that it makes it a bit trickier for students to take any additional ST courses. ST 370 is designed as a terminal class, so if they want to move on to a higher level class the next options are 312 (non-calculus, prerequisites of 311) or 372 (calculus, prerequisites of 371). We allow them to move on to either of those two options from 370, but with the explicit understanding that 370 does not cover all the prerequisite material and that they will have to do extra independent work to learn that material. This mainly comes into play when someone who has taken 370 wants to add a ST minor.

Let me know if you have any questions-
Spencer

Spencer Muse
muse@ncsu.edu

> On Sep 5, 2018, at 1:35 PM, Carrie Thomas <cjthomas@ncsu.edu> wrote:
>
> Dear Spencer,
> We are putting the finishing touches on or revisions to the BS in Meteorology, and we would like to adjust our statistics course requirement. Presently we require ST 380. We would like to offer a choice between ST 370 or ST 380. ST 380 is not regularly offered so this will allow students some flexibility. Would you please provide a consultation email I can attach to our revisions?
> Thanks,
> Carrie
>

**Signature Page
MEAS Curricular Revisions**

Endorsed By:

 _____  _____
Head, Department/Program Date

Recommended By:

 _____  _____
Chair, College Curriculum Committee Date

Endorsed By:

 _____  _____
College Dean Date

Recommended By:

_____ _____
Chair, University Courses & Curricula Committee Date

Approved By:

_____ _____
Dean, (DASA) Date

Marine Sciences (BS): Physics (17MARSCBS-17MARSCPHY)

Freshman Year

Fall Semester	Credit	Spring Semester	Credit
ENG 101 Academic Writing & Research ^{1,4,H}	4	CH 201 Chemistry – Quant Sci ^{1,B}	3
CH 101 Chemistry- Molecular Sci ^{1,B}	3	CH 202 Quant Chemistry Lab ^{3,1,B}	1
CH 102 General Chemistry Lab ^{3,B}	1	MA 241 Calculus II ^{1,A}	4
MA 141 Calculus I ^{1,A}	4	MEA 100 Earth System Science ^{2,7,G,T}	4
COS 100 <i>The Science of Change</i> 6,4 <i>Perspectives on Learning</i> 5	1 2	PY 202 University Physics II ^{1,6,5}	4
PY 201 University Physics I ^{1,6,5}	4		
	17 14		16

Sophomore Year

Fall Semester	Credit	Spring Semester	Credit
MA 242 Calculus III ³	4	Computer Science Option ^{3,6}	3
MEA 200 Intro to Oceanography ²	3	GEP Humanities Reqt. ^C	3
MEA 210 Oceanography Lab ²	1	MA 341 Applied Differential Eqns I ³	3
PY 203 University Physics III ^{1,6,5}	4	MEA 250 Intro to Coastal Environments ²	3
GEP Social Sciences Reqt. ^D	3	PY 411 Mechanics ²	3
	15		15 16

move to Spring

move to fall

move to Sp. 30 ph. yr

move to fall junior yr

Junior Year

Fall Semester	Credit	Spring Semester	Credit
GEP Interdisc. Persp. Req^t.^G <i>delete</i>	3	MEA 462 Obser Method & Data Analysis ²	3
MA 401 Applied Differential Eqns II ³	3	MEA 467 Marine Meteorology ²	3
MEA 460 Physical Oceanography ²	3	PY 413 Thermal Physics ²	3
HES_*** Health & Exercise Studies Course ^E	1	ST 380 ³⁷⁶ Prob & Stat for Phys Sci ³ <i>Engineers</i>	3
PY 411 Mechanics ²	3	GEP Addtl. Breadth Req ^t . ^F	3
	13		15 16

Summer

Summer Session	Credit
MEA 459 Coastal Processes ²	5

Senior Year

Fall Semester	Credit	Spring Semester	Credit
Advanced Writing Elective ¹⁰ <i>8</i>	3	MEA 464 Ocean Circulations Sys ²	3
GEP Social Sciences Req ^t . ^D	3	PY 415 Electromagnetism II ²	3
HES_*** Health & Exercise Studies Course ^E	1	GEP Humanities Requirement ^C	3
MEA 495 Senior Seminar <i>Junior Seminar</i>	1	GEP Interdisc. Persp. Req^t.^G <i>delete</i>	2-3
MEA 463 Fluid Physics ²	3	Technical Elective ^{2,4} <i>7</i>	3
PY 414 Electromagnetism I ²	3		
	14 13		14-15 12

Minimum Credit Hours Required for Graduation^{*I,J,K}:

124 *10*

Major/Program Footnotes

1. Grade of C- or higher required in CH 101, 201; ENG 101; MA 141, 241; PY 201, 202, 203.
2. No more than one D will be accepted in MEA core courses and concentration courses.
3. No more than one D will be accepted in other basic math or science courses.
4. ~~ENG 101 will not be available for all students in fall of their freshman year. Students not enrolled in ENG 101 should register for this course the following fall, and substitute a GEP Social Sciences Requirement in their first semester.~~ *delete*
5. E 115 may substitute for COS 100.
6. Students may substitute PY 205 for PY 201, PY 208 for PY 202, and PY 407 for PY 203. However, they must take the lab section of PY 203 if they elect to take PY 407.
7. ~~Majors should enroll in the honors lab section.~~ *delete*
8. ~~CSC 112 or CSC 114.~~ *111, CSC 112, CSC 113, CSC 116 or PY 257.*
9. Technical Electives are courses at the 300 level or above in physical, mathematical, or biological sciences and in engineering.
10. Advanced Writing Elective must be selected from ENG 331, ENG 332, and ENG 333. It satisfies the Communication in the Major Co-Requisite.

* General Education Program (GEP) requirements and GEP Footnotes

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <https://oucc.dasa.ncsu.edu/general-education-program/>.

A. Mathematical Sciences (6 credit hours; one course with MA or ST prefix)

Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 141, MA 241

B. Natural Sciences (7 credit hours; include one laboratory course or course with a lab)

Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: CH 101, CH 102, CH 201

C. Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none

D. Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none

E. Health & Exercise Studies (2 credit hours; at least one 100-level Fitness and Wellness Course)

Choose from the University approved GEP Health & Exercise Studies course list.

F. Additional Breadth (3 credit hours to be selected from the following checked University approved GEP course lists)

Humanities/Social Sciences/Visual and Performing Arts

G. Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: ~~none~~ *COS 100, MEA 100*

H. Introduction to Writing (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements

I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: none

J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: ~~none~~ *MEA 100*

K. Foreign Language proficiency Proficiency at the FL_102 level is required for graduation.

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Spring 2019

Degree/Plan Title: BS in Marine Science

Concentration/Subplan Title: Physics

Plan SIS Code: 17MARSCBS

Subplan SIS Code: 17MARSCPHY

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MA 141 Calculus I ^{1,A}	4 CP	CH 101 Chemistry- Molecular Sci ^{1,B}	3
MEA 100 Earth System Science ^{2,G,I}	4	CH 102 General Chemistry Lab ^{3,B}	1
COS 100 Science of Change ^{6,4}	2	ENG 101 Academic Writing & Research ^{1,H}	4
PY 201 University Physics I ^{1,5}	4 CP	MA 241 Calculus II ^{1,A}	4 CP
		PY 202 University Physics II ^{1,5}	4 CP
	<i>Total:14</i>		<i>Total:16</i>
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MA 242 Calculus III ³	4	CH 201 Chemistry – Quant Sci ^{1,B}	3
MEA 200 Intro to Oceanography ²	3 CP	CH 202 Quant Chemistry Lab ³	1
MEA 210 Oceanography Lab ²	1	Computer Science Option ^{3,6}	3
PY 203 University Physics III ^{1,5}	4	MA 341 Applied Differential Eqns I ³	3
GEP Social Sciences Requirement ^D	3	MEA 250 Intro to Coastal Environments ²	3
		PY 411 Mechanics I ²	3
	<i>Total:15</i>		<i>Total:16</i>
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
GEP Humanities Requirement ^C	3	MEA 462 Obser Method & Data Analysis ²	3
MA 401 Applied Differential Eqns II ³	3	MEA 467 Marine Meteorology ²	3
MEA 460 Physical Oceanography ²	3	MEA 495 Junior Seminar	1
HESF 1** Health & Exercise Studies Course ^E	1	PY 413 Thermal Physics ²	3
PY 412 Mechanics II ²	3	ST 370 Prob & Stat for Engineers ³	3
		GEP Additional Breadth Requirement ^F	3
	<i>Total:13</i>		<i>Total:16</i>
SUMMER SESSION I			
MEA 459 Coastal Processes ² 5 cr.			
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
Advanced Writing Elective ⁸	3	MEA 464 Ocean Circulation ²	3
GEP Social Sciences Requirement ^D	3	PY 415 Electromagnetism II ²	3
HES_*** Health & Exercise Studies Course ^E	1	GEP Humanities Requirement ^C	3
MEA 463 Fluid Physics ²	3	Technical Elective ^{2,7}	3
PY 414 Electromagnetism I ²	3		
	<i>Total:13</i>		<i>Total:12</i>
Minimum Credit Hours Required for Graduation*: 120			

Major/Program Footnotes:

- Grade of C- or higher required in CH 101, 201; ENG 101; MA 141, 241; PY 201, 202, 203.
- No more than one D will be accepted in MEA core courses and concentration courses.
- No more than one D will be accepted in other basic math or science courses
- E 115 may substitute for COS 100.
- Students may substitute PY 205 for PY 201, PY 208 for PY 202, and PY 407 for PY 203. However, they must take the lab section of PY 203 if they elect to take PY 407.
- CSC 111, CSC 112, CSC 113, CSC 116 or PY 251.

7. Technical Electives are courses at the 300 level or above in physical, mathematical, or biological sciences and in engineering.
8. Advanced Writing Elective must be selected from ENG 331, ENG 332, and ENG 333. It satisfies the Communication in the Major Co-Requisite.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 141, MA 241**
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101, CH 102, CH 201**
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **none**
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **none**
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **COS 100, MEA 100**
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **none**
- J. **Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **MEA 100**
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS

Format B

<u>Degree/Plan Title:</u> BS in Marine Science	<u>Plan SIS Code:</u> 17MARSCBS
<u>Concentration/Subplan Title:</u> Physical Oceanography	<u>Subplan SIS Code:</u> 17MARSCPHY
<u>Indicate requirements status:</u> Current: Proposed: Y	<u>Proposed Effective Semester:</u> Spring 2019
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
<u>CORE COURSES/MARINE SCIENCE</u>		
MEA 100 EARTH SYS SCIENCE	4	Interdisciplinary Perspectives 4 hours; Satisfies the Global Knowledge Co-Requisite
MEA 200 INTRO OCEANOGRAPHY	3 CP	
MEA 210 OCEANOGRAPHY LAB	1	Satisfies the Technology Fluency Co-Requisite
MEA 250 INTRO TO COASTAL ENVIRONMENTS	3	
MEA 459 COASTAL PROCESSES	5	
MEA 460 PRIN PHYS OCEANOGRAPHY	3	
MEA 462 METHODS MARINE PY	3	
MEA 495 JUNIOR SEMINAR	1	
<u>BASIC MATH & SCIENCES</u>		
CH 101 CHEM MOLECULAR SCI (C-wall)	3	Natural Science 3 hours
CH 102 GEN CHEM LAB	1	Natural Science 1 hours
CH 201 CHEM-A QUANTI SCI (C-wall)	3	Natural Science 3 hours
CH 202 QUANT CHEM LAB	1	
PY 201 UNIVERSITY PHYSICS I (C-wall)	4 CP	
PY 202 UNIVERSITY PHYSICS II (C-wall)	4 CP	
MA 141 CALCULUS I (C-wall)	4 CP	Mathematics 3 hours
MA 241 CALCULUS II (C-wall)	4 CP	Mathematics 3 hours
MA 242 CALCULUS III	4	
MA 341 APPL DIFF EQ I	3	
MA 401 APPL DIFF EQUAT II	3	
ST 370 PROB & STAT FOR ENGINEERS	3	
COMPUTER SCIENCE OPTION: CSC 111, CSC 112, CSC 113, CSC 116 or PY 251	3	
<u>Concentration Courses/Groups/Electives:</u>		
MEA 463 FLUID PHYSICS	3	
MEA 464 OCEAN CIRCULATION	3	
MEA 467 MARINE METEOROLOGY	3	
PY 203 UNIV PHYSICS III (C-wall)	4	
PY 411 MECHANICS I	3	
PY 412 MECHANICS II	3	
PY 413 THERMAL PHYSICS	3	
PY 414 ELECTROMAGNETISM I	3	
PY 415 ELECTROMAGNETISM II	3	

TECHNICAL ELECTIVE (no course pattern)	3	
No more than one D will be allowed in MEA core courses and concentration courses. No more than one D will be allowed in other basic math and science courses.		
Free Electives:		
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	94 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s): COS 100 (E 115 can substitute)	2	Interdisciplinary Perspectives 2hours
Other: ADVANCED WRITING ELECTIVE: ENG 331, ENG 332, or ENG 333	3	Satisfies Communication in the Major GEP co-requisite
Total credit hours under College Requirements:	5 Hours	

<u>NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</u>		<u>At least one of the following must be listed:</u>
<p><i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i></p> <p><i>Specific courses should not be listed in any of the fields below other than ENG 101.</i></p>		<ol style="list-style-type: none"> Choose course(s) from the University Approved GEP course list for this category. Minimum requirements are satisfied by Major/College course requirements. Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category. Co-requisite is satisfied by a Major/College course requirement. Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts. Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) <i>Choose course(s) from the University Approved GEP course list for this category.</i>
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) <i>Choose course(s) from the University Approved GEP course list for this category.</i>
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.</i>	3	(Choose statement 5 or 6) <i>Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.</i>
Interdisciplinary Perspectives (5 credits) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
Health and Exercise Studies (2 credits) (Including one Fitness and Wellness course)	2	<i>Choose course(s) from the University Approved GEP course list for this category.</i>

Total credit hours needed to complete GEP that are <u>not</u> satisfied as part of the Major/College requirements.	21 hours	
GEP Co-Requisites:		<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.</i>
U.S. Diversity co-requisite (USD)	n/a	<small>(Choose statement 1 or 4)</small> Choose course(s) from the University Approved GEP course list for this category.
Global Knowledge co-requisite (GK)	n/a	<small>(Choose statement 1 or 4)</small> Co-requisite is satisfied by a Major/College course requirement.
Foreign Language Proficiency	n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:		Place an X in the credit hour box to indicate below that the requirement is "Satisfied by College/Program Requirements"
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements
Technology Fluency	X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.



College of Sciences

Department of Marine, Earth,
and Atmospheric Sciences

Campus Box 8208 / 1125 Jordan Hall
Raleigh, NC 27695-8208

919.515.3711
www.meas.ncsu.edu

Memorandum

To: Mike Mullen, Vice Chancellor and Dean of the Division of Academic and Student Affairs

From: Carrie Thomas, Director of Undergraduate Programs, Marine, Earth & Atmospheric Sciences

Revision of Curriculum to meet UNC Policy 400.1.5

Proposed effective date: January 2019

Plan and subplan affected: 17METBS

List of revisions with reasons and impacts:

- 1) Allow students to double count required major courses for GEP requirements to reduce the number of credit hours taken for graduation to 120. Credits for MEA 100 (4) and COS 100 (2) will count toward the Interdisciplinary Perspectives GEP requirement (previously only MEA 100 counted).
- 2) Eliminate Approved Elective credits required from 15 to 12 credit hours.
- 3) Revise course requirements to reflect current catalog offerings:
 - A) MEA 213 Intro to Atmospheric Sciences I (2 credits) and MEA 214 Intro to Atmospheric Sciences II (2 credits) are now MEA 215 Intro to Atmospheric Science (4 credits)
 - B) COS 100 Perspectives on Learning (1 credit) is now COS 100 Science of Change (2 credits)
 - C) ST 380 Probability & Statistics for Physical Sciences is no longer being taught, so ST 370 Probability & Statistics for Engineers replaces it.
 - D) The Matlab requirement (MA 116) is broadened to include other computer science options as the department develops a computing course for atmospheric sciences. Students are currently enrolling in a special topics shell as the course is refined. As soon as the course action is final in the Spring, we will once again revise this requirement.
 - E) MEA 495 Senior Seminar is now MEA 495 Junior Seminar.
- 4) Rearrange semester-by-semester plan to balance hours and to ensure prerequisite sequencing.
 - A) ENG 101 is moved from the fall semester to the spring semester of the freshman year.

- B) MEA 100 Earth Systems Science is moved from the spring semester to the fall semester of the freshman year.
 - C) MEA 315 Math methods in MEAS is moved from the fall semester to the spring semester of the sophomore year.
 - D) The GEP Humanities requirement is moved from the spring semester of the sophomore year to the fall semester of the senior year.
 - E) MEA 495 Junior Seminar is moved from the fall semester of the senior year to the spring semester of the junior year.
- 5) Update footnotes to reflect changes in the curriculum.

Attachments:

Consultations

Signature page

Current Semester-by-Semester Plan

Proposed Format A

Proposed Format B

Signature Page
MEAS Curricular Revisions

Endorsed By:

 _____  _____
Head, Department/Program Date

Recommended By:

 _____  _____
Chair, College Curriculum Committee Date

Endorsed By:

 _____  _____
College Dean Date

Recommended By:

_____ _____
Chair, University Courses & Curricula Committee Date

Approved By:

_____ _____
Dean, (DASA) Date

Consultations

From: Spencer Muse <muse@ncsu.edu>
Date: Wed, Sep 5, 2018 at 2:08 PM
Subject: Re: consult for curricular revision
To: Carrie Thomas <cjthomas@ncsu.edu>

My understanding is that 380 is no longer going to be taught, period. I remember announcing this at a UAAC meeting some time ago, with the suggestion being to move students into either 311 or 370. (I'll follow up on this, and if its correct I'll submit a course action tp remove it from the catalog). ST 370 aligns more closely with the content of 380. The only negative to requiring 370 is that it makes it a bit trickier for students to take any additional ST courses. ST 370 is designed as a terminal class, so if they want to move on to a higher level class the next options are 312 (non-calculus, prerequisites of 311) or 372 (calculus, prerequisites of 371). We allow them to move on to either of those two options from 370, but with the explicit understanding that 370 does not cover all the prerequisite material and that they will have to do extra independent work to learn that material. This mainly comes into play when someone who has taken 370 wants to add a ST minor.

Let me know if you have any questions-
Spencer

Spencer Muse
muse@ncsu.edu

> On Sep 5, 2018, at 1:35 PM, Carrie Thomas <cjthomas@ncsu.edu> wrote:
>
> Dear Spencer,
> We are putting the finishing touches on or revisions to the BS in Meteorology, and we would like to adjust our statistics course requirement. Presently we require ST 380. We would like to offer a choice between ST 370 or ST 380. ST 380 is not regularly offered so this will allow students some flexibility. Would you please provide a consultation email I can attach to our revisions?
> Thanks,
> Carrie
>

Meteorology (BS) (17METBS)

Freshman Year

Fall Semester	Credit	Spring Semester	Credit
CH 101 Chemistry- A Molecular Science ¹	3	CH 201 Chemistry – A Quant Sci ^{3,6}	3
CH 102 General Chem Lab ³	1	CH 202 General Quant Lab ^{3,6}	1
ENG 101 Academic Writing & Research ^{1,4,H}	4	MA 116 Intro to Scientific Programming	3 delete
MA 141 Calculus I ^{1,A}	4	MA 241 Calculus II ^{1,A}	4
MEA 213 Intro to Atmospheric Sciences I²	2	MEA 214 Intro to Atmospheric Sciences II ²	2
HES ⁷ *** Health & Exercise Studies Course ^E	1	MEA 100 Earth System Science ^{G,I}	4
COS 100 <i>The Science of Change</i> ^{5,6} Perspectives on Learning	1		
	16		17
	15		16

Sophomore Year

Fall Semester	Credit	Spring Semester	Credit
MA 242 Calculus III ³	4	Approved Elective ^{2,7}	3 delete
MEA 321 Fund. of Air Quality & Climate Chg ²	3	GEP Humanities Requirement ^C	3
MEA 315 Math. Methods in Atmos. Sci. ²	4	MA 341 Appl Differential Equations I ³	3
HES ⁷ *** Health & Exercise Studies Course ^E	1	MEA 312 Atmospheric Thermodynamics ²	4
PY 205 Physics for Engr & Sci I ^{1,B}	3	PY 208 Physics Engr & Sci II ^{3,B}	3
PY 206 Physics for Engineers & Scientists I Lab ^{3,B}	1	PY 209 Physics for Engineers & Scientists Lab II ³	1
	16		17
	14		15

Junior Year

Fall Semester	Credit	Spring Semester	Credit
Approved Elective ^{2,7}	3	Approved Elective ^{2,7}	3
MEA 421 Atmospheric Dynamics I ¹	3	Advanced Writing Elective ⁹	3
Geophysical Science Elective ^{2,3,8}	3	MEA 412 Atmospheric Physics ²	3
GEP Social Sciences Req. ^D	3	MEA 422 Atmospheric Dynamics II ¹	3
ST 380 Prob & Stat for Phys Sciences ^{Engineers} ³	3	GEP Addt. Breadth Req. ^F	3
	15		15/16

Senior Year

Fall Semester	Credit	Spring Semester	Credit
Approved Elective ^{2,7}	3	Approved Elective ^{2,7}	3
Restricted Elective ^{2,10}	3	Restricted Elective ^{2,10}	3
GEP Interdisciplinary Perspectives Req.^G 1-2		Restricted Elective ^{2,10}	3
MEA 443 Synoptic Weather Analysis & Forecast ²	4	GEP Humanities Req. ^C	3
MEA 495 Senior Seminar in MEAS ^{Junior}	1	GEP Social Sciences Req. ^D	3
	14 12-13		15

move to sp jr yr

delete

Major/Program Footnotes

1. Grade of C- or higher required in CH 101; ENG 101; MA 141, 241; MEA 421, 422; and PY 205.
2. No more than one D will be accepted in MEA or Approved Elective courses.
3. No more than one additional D will be accepted in other math or science courses.
- ~~4. ENG 101 will not be available for all students in fall of their freshman year. Students not enrolled in ENG 101 should register for this course the following Spring, and substitute a GEP Humanities Requirement in their first semester.~~
5. E 115 may substitute for COS 100.
6. Advanced transfer students are permitted to substitute mathematics, science, or engineering credits for CH 201, 202.
7. Approved Electives constitute a minor field of emphasis consisting of at least 15 credit hours in a single discipline or related disciplines. These include, but are not limited to: biometeorology, chemistry, computer science, environmental quality, geology-geophysics, hydrology, mathematics, physics, physical oceanography, statistics, several areas of engineering, agriculture, forestry, science education, weather communication.
8. Geophysical Science Elective is selected from among MEA 101, MEA 200, PY 123, PY 124, SSC 200.
9. Advanced Writing Elective must be selected from ENG 331, ENG 332, and ENG 333. The Advanced Writing Elective may not be used to satisfy the GEP Humanities requirement. It does satisfy the Communication in the Major Co-Requisite.
10. Any meteorology course at the 400 level or above. Course choice affects career options. See advisor for appropriate course selection.

4. *Computing option: An MEA computing course, MA 116, PY 251 or CSC 113.*

* General Education Program (GEP) requirements and GEP Footnotes

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <https://oucc.dasa.ncsu.edu/general-education-program/>.

A. Mathematical Sciences (6 credit hours; one course with MA or ST prefix)

Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 141 & MA 241

B. Natural Sciences (7 credit hours; include one laboratory course or course with a lab)

Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: PY 205 & PY 208 *PY 207, 206, 208*

C. Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none

D. Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none

E. Health & Exercise Studies (2 credit hours – at least one 100-level Fitness and Wellness Course)

Choose from the University approved GEP Health & Exercise Studies course list.

F. Additional Breadth (3 credit hours to be selected from the following checked University approved GEP course lists)

Humanities/Social Sciences/Visual and Performing Arts

G. Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MEA 100, *COS 100*

H. Introduction to Writing (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements

I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: none

J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: MEA 100

K. Foreign Language proficiency Proficiency at the FL_102 level is required for graduation.

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Spring 2019

Degree/Plan Title: BS in Meteorology

Concentration/Subplan Title:

Plan SIS Code: 17METBS

Subplan SIS Code:

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 101 Chemistry- A Molecular Science ¹	3 CP	CH 201 Chemistry – A Quant Sci ^{3,6}	3
CH 102 General Chemistry Lab ³	1	CH 202 General Quant Lab ^{3,6}	1
MA 141 Calculus I ^{1,A}	4 CP	ENG 101 Academic Writing & Research ^{1,H}	4 CP
MEA 100 Earth Systems Science ^{2,G,J}	4 CP	MA 241 Calculus II ^{1,A}	4 CP
HESF 1** Health & Exercise Studies Course ^E	1	MEA 215 Introduction to Atmospheric Sciences ²	4 CP
COS 100 The Science of Change ^{5,G}	2		
	<i>Total: 15</i>		<i>Total: 16</i>
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MA 242 Calculus III ³	4	MA 341 Appl Differential Equations I ³	3
MEA 321 Fund. Of Air Quality & Climate Chg. ²	3	MEA 312 Atmospheric Thermodynamics ²	4
PY 205 Physics for Engineers & Scientists I ^{1,B}	3 CP	MEA 315 Mathematical Methods in Atmos. Sci. ²	4
PY 206 Physics for Engineers & Scientists I Lab ^{3,B}	1	PY 208 Physics for Engineers & Scientists II ^{3,B}	3
Computing Option ^{3,4}	3	PY 209 Physics for Engineers & Scientists Lab II ³	1
	<i>Total: 14</i>		<i>Total: 15</i>
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
Approved Elective ^{2,7}	3	Advanced Writing Elective ⁹	3
MEA 421 Atmospheric Dynamics I ¹	3	Approved Elective ^{2,7}	3
Geophysical Science Elective ^{2,3,8}	3	MEA 412 Atmospheric Physics ²	3
GEP Social Sciences Requirement ^D	3	MEA 422 Atmospheric Dynamics II ¹	3
ST 370 Prob & Stat for Engineers ³	3	MEA 495 Junior Seminar in MEAS	1
		GEP Additional Breadth Requirement ^F	3
	<i>Total: 15</i>		<i>Total: 16</i>
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
Approved Elective ^{2,7}	3	Approved Elective ^{2,7}	3
Restricted Elective ^{2,10}	3	Restricted Elective ^{2,10}	3
GEP Humanities Requirement ^C	3	Restricted Elective ^{2,10}	3
HES_*** Health & Exercise Studies Course ^E	1	GEP Humanities Requirement ^C	3
MEA 443 Synoptic Weather Analysis & Forecast ²	4	GEP Social Sciences Requirement ^D	3
	<i>Total: 14</i>		<i>Total: 15</i>
Minimum Credit Hours Required for Graduation[*]: 120			

Major/Program Footnotes:

- Grade of C- or higher required in CH 101; ENG 101; MA 141, 241; MEA 421, 422; and PY 205.
- No more than one D will be accepted in MEA or Approved Elective courses.
- No more than one additional D will be accepted in other math or science courses.
- Computing Option: An MEA computing course, MA 116, PY 251 or CSC 113.
- E 115 may substitute for COS 100.
- Advanced transfer students are permitted to substitute mathematics, science, or engineering credits for CH 201, 202.
- Approved Electives constitute a minor field of emphasis consisting of at least 12 credit hours in a single discipline or related disciplines. These include, but are not limited to: biometeorology, chemistry, computer science, environmental quality, geology-geophysics, hydrology, mathematics, physics, physical oceanography, statistics, several areas of engineering, agriculture, forestry, science education, weather communication.

8. Geophysical Science Elective is selected from among MEA 101, MEA 200, PY 123, PY 124, SSC 200.
9. Advanced Writing Elective must be selected from ENG 331, ENG 332, and ENG 333. The Advanced Writing Elective may not be used to satisfy the GEP Humanities requirement. It does satisfy the Communication in the Major Co-Requisite.
10. Any meteorology course at the 400 level or above. Course choice affects career options. See advisor for appropriate course selection.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 141 & MA 241**
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **PY 205, PY 206 & PY 208**
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None**
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None**
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- E. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **COS 100 & MEA 100**
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity** (USD)
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **None**
- J. **Global Knowledge** (GK)
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **MEA 100**
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS

Format B

<u>Degree/Plan Title:</u> BS in Meteorology	<u>Plan SIS Code:</u> 17METBS
<u>Concentration/Subplan Title:</u>	<u>Subplan SIS Code:</u>
<u>Indicate requirements status:</u> Current: Proposed: X	<u>Proposed Effective Semester:</u> Spring 2019
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:	Credit Hours	GEP category, if applicable
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
<u>METEOROLOGY CORE</u>		
MEA 100 EARTH SYSTEMS SCIENCE	4 CP	Interdisciplinary Perspectives 4 hours Satisfies the Technology Fluency co-requisite
MEA 215 INTRODUCTION TO ATMOSPHERIC SCIENCES	4 CP	
MEA 312 ATMOSPHERIC THERMODYNAMICS	4	
MEA 315 MATHEMATICAL METHODS IN ATMOS SCI	4	
MEA 321 FUNDAMENTALS OF AIR QUALITY & CLIMATE CHANGE	3	
MEA 421 ATMOSPHERIC DYNAMICS I (C-wall)	3	
MEA 412 ATMOSPHERIC PHYSICS	3	
MEA 422 ATMOSPHERIC DYNAMICS II (C-wall)	3	
MEA 443 SYNOPTIC WEATHER ANALY & FCST	4	
MEA 495 JUNIOR SEMINAR IN MEAS	1	
MEA RESTRICTED ELECTIVE (any MEA >399)	9	
<u>MATH/STATISTICS/COMPUTER SCIENCE</u>		
COMPUTING OPTION (any MEA computing course, MA 116, PY 251 or CSC 113)	3	Mathematics 4 hours Mathematics 2 hours
MA 141 CALCULUS I (C-wall)	4 CP	
MA 241 CALCULUS II (C-wall)	4 CP	
MA 242 CALCULUS III	4	
MA 341 APPL DIFF EQ I	3	
ST 370 PROBABILITY & STATISTICS FOR ENGINEERS	3	
<u>CHEMISTRY/PHYSICS</u>		
CH 101 CHEM MOLECULAR SCI (C-wall)	3 CP	Natural Sciences 3 hours Natural Sciences 1 hour Natural Sciences 3 hours
CH 102 GEN CHEM LAB	1	
CH 201 CHEM-A QUANTI SCI	3	
CH 202 QUANT CHEM LAB	1	
PY 205 PHYSICS FOR ENGINEERS & SCI I (C-wall)	3 CP	
PY 206 PHYSICS FOR ENGINEERS & SCI I Lab	1	
PY 208 PHYSICS FOR ENGINEERS & SCI II	3	
PY 209 PHYSICS FOR ENGINEERS & SCI Lab II	1	
<u>GEOPHYSICAL ELECTIVE</u>		
GEOPHYSICAL ELECTIVE (MEA 101, MEA 200, PY 123, PY 124, or SSC 200)	3	
<u>APPROVED ELECTIVES</u>		
CONSULT WITH ADVISER (no course pattern)	12	
No more than one D will be accepted in MEA or Approved Elective courses. No more than one additional D will be accepted in other math or science courses.		

Concentration Courses/Groups/Electives:		
Free Electives:		
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	94 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s): COS 100 (E 115 or ENVFY 101 may substitute)	2	Interdisciplinary Perspectives 2 hours
Other: ADVANCED WRITING (ENG 331, ENG 332, OR ENG 333)	3	Satisfies Communication in the Major GEP co-requisite. May NOT be used to satisfy the GEP Humanities requirement.
Total credit hours under College Requirements:	5 Hours	

<u>NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</u>		At least one of the following must be listed:
<i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i>		1 Choose course(s) from the University Approved GEP course list for this category.
<i>Specific courses should not be listed in any of the fields below other than ENG 101.</i>		2 Minimum requirements are satisfied by Major/College course requirements.
		3 Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
		4 Co-requisite is satisfied by a Major/College course requirement.
		5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.
		6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) <i>Choose course(s) from the University Approved GEP course list for this category.</i>
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) <i>Choose course(s) from the University Approved GEP course list for this category.</i>
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.</i>	3	(Choose statement 5 or 6) <i>Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.</i>
Interdisciplinary Perspectives (5 credits) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
Health and Exercise Studies (2 credits) (Including one Fitness and Wellness course)	2	<i>Choose course(s) from the University Approved GEP course list for this category.</i>
Total credit hours needed to complete GEP that are <u>not</u> satisfied as part of the Major/College requirements.	21 hours	

GEP Co-Requisites:			<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.</i>
U.S. Diversity co-requisite	(USD)	n/a	<i>(Choose statement 1 or 4) Choose course(s) from the University Approved GEP course list for this category.</i>
Global Knowledge co-requisite	(GK)	n/a	<i>(Choose statement 1 or 4) Co-requisite is satisfied by a Major/College course requirement.</i>
Foreign Language Proficiency		n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:			Place an X in the credit hour box to indicate below that the requirement is "Satisfied by College/Program Requirements"
Communication in the Major (Advanced Communication)		X	Satisfied by College/Program Requirements
Technology Fluency		X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.		120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.



College of Sciences

Department of Marine, Earth,
and Atmospheric Sciences

Campus Box 8208 / 1125 Jordan Hall
Raleigh, NC 27695-8208

919.515.3711
www.meas.ncsu.edu

Memorandum

To: Mike Mullen, Vice Chancellor and Dean of the Division of Academic and Student Affairs

From: Carrie Thomas, Director of Undergraduate Programs, Marine, Earth & Atmospheric Sciences

Revision of Curriculum to meet UNC Policy 400.1.5

Proposed effective date: January 2019

Plan and subplan affected: 17METBS – 17METMAR

List of revisions with reasons and impacts:

- 1) Allow students to double count required major courses for GEP requirements to reduce the number of credit hours taken for graduation to 120. Credits for MEA 100 (4) and COS 100 (2) will count toward the Interdisciplinary Perspectives GEP requirement (previously only MEA 100 counted).
- 2) Eliminate Restricted Elective credits (3 credits).
- 3) Revise course requirements to reflect current catalog offerings:
 - A) MEA 213 Intro to Atmospheric Sciences I (2 credits) and MEA 214 Intro to Atmospheric Sciences II (2 credits) are now MEA 215 Intro to Atmospheric Science (4 credits)
 - B) COS 100 Perspectives on Learning (1 credit) is now COS 100 Science of Change (2 credits)
 - C) ST 380 Probability & Statistics for Physical Sciences is no longer being taught, so ST 370 Probability & Statistics for Engineers replaces it.
 - D) The Matlab requirement (MA 116) is broadened to include other computer science options as the department develops a computing course for atmospheric sciences. Students are currently enrolling in a special topics shell as the course is refined. As soon as the course action is final in the spring, we will once again revise this requirement.
 - E) Remove CE 200 from the geophysical science elective list as it is no longer in the catalog.
 - F) MEA 495 Senior Seminar is now MEA 495 Junior Seminar.
- 4) Rearrange semester-by-semester plan to balance hours, ensure pre-requisite sequencing and align with the BS in Meteorology with no subplan.

- A) ENG 101 is moved from the fall semester to the spring semester of the freshman year.
 - B) MEA 100 Earth Systems Science is moved from the spring semester to the fall semester of the freshman year.
 - C) MEA 315 Math methods in MEAS is moved from the fall semester to the spring semester of the sophomore year.
 - D) MEA 200 and MEA 210 Introduction to Oceanography and lab are moved from the spring semester of the sophomore year to the fall of the junior year.
 - E) An HES GEP course is moved from the fall of sophomore year to the fall of senior year.
 - F) The GEP Humanities requirement is moved from the fall semester of the junior year to the fall semester of the senior year.
 - G) One GEP Social Science requirement is moved spring of the junior year to the fall of the junior year. The other is moved from the fall semester of the senior year to the spring semester of the senior year.
 - H) The MEA 460 Physical Oceanography and MEA 462 Observational Methods series is moved from junior year to senior year.
 - I) An approved elective is moved from the fall of the senior year to the spring of the junior year.
 - J) MEA 495 Junior Seminar is moved from the fall semester of the senior year to the spring semester of the junior year.
- 5) Update footnotes to reflect changes made in the curriculum.

Attachments:

Consultations

Signature page

Current Semester-by-Semester Plan

Proposed Format A

Proposed Format B

Consultations

From: Spencer Muse <muse@ncsu.edu>
Date: Wed, Sep 5, 2018 at 2:08 PM
Subject: Re: consult for curricular revision
To: Carrie Thomas <cjthomas@ncsu.edu>

My understanding is that 380 is no longer going to be taught, period. I remember announcing this at a UAAC meeting some time ago, with the suggestion being to move students into either 311 or 370. (I'll follow up on this, and if its correct I'll submit a course action tp remove it from the catalog). ST 370 aligns more closely with the content of 380. The only negative to requiring 370 is that it makes it a bit trickier for students to take any additional ST courses. ST 370 is designed as a terminal class, so if they want to move on to a higher level class the next options are 312 (non-calculus, prerequisites of 311) or 372 (calculus, prerequisites of 371). We allow them to move on to either of those two options from 370, but with the explicit understanding that 370 does not cover all the prerequisite material and that they will have to do extra independent work to learn that material. This mainly comes into play when someone who has taken 370 wants to add a ST minor.

Let me know if you have any questions-
Spencer

Spencer Muse
muse@ncsu.edu

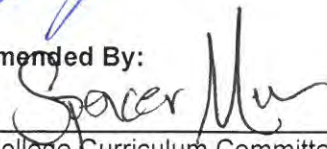
> On Sep 5, 2018, at 1:35 PM, Carrie Thomas <cjthomas@ncsu.edu> wrote:
>
> Dear Spencer,
> We are putting the finishing touches on or revisions to the BS in Meteorology, and we would like to adjust our statistics course requirement. Presently we require ST 380. We would like to offer a choice between ST 370 or ST 380. ST 380 is not regularly offered so this will allow students some flexibility. Would you please provide a consultation email I can attach to our revisions?
> Thanks,
> Carrie
>

Signature Page
MEAS Curricular Revisions

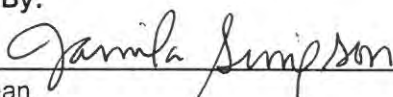
Endorsed By:

 2/27/2018
Head, Department/Program Date

Recommended By:

 SM
9/25/18
Chair, College Curriculum Committee Date

Endorsed By:

 9/28/18
College Dean Date

Recommended By:

Chair, University Courses & Curricula Committee Date

Approved By:

Dean, (DASA) Date

Meteorology (BS): Marine Sciences (17METBS-17METMAR)

Freshman Year

Fall Semester	Credit	Spring Semester	Credit
CH 101 Chem Molecular Sci ¹	3	CH 201 Chem Quant Sci ^{3, 4}	3
CH 102 General Chem Lab ³	1	CH 202 Gen. Quant. Lab ^{3, 6}	1
ENG 101 Academic Writing & Research ^{1, A, H}	4	MA 116 Intro. to Scient. Programming ³	3
ME 213 Intro. to Atmospheric Sciences I ²	2	MA 241 Calculus II ^{1, A}	4
MA 141 Calculus I ^{1, A}	4	ME 214 Intro to Atmospheric Sciences II ²	2
HES *** Health & Exercise Studies Course ^E	1	ME 100 Earth System Science ^{G, J}	4
COS 100 Perspectives on Learning ^{5, G}	1		
	16		17

Handwritten notes:
 - Red circles around ENG 101, ME 213, and ME 100.
 - Red arrows pointing from ME 213 to ENG 101 with text "move to fall".
 - Red arrow pointing from ME 100 to ME 213 with text "move to Sp".
 - Red arrow pointing from ME 100 to ME 214 with text "5 Intro to Atm Sci 2".
 - Red numbers: 16, 15, 17, 16.
 - Red text: "The Science of Change", "Compatible option 3, 4".

Sophomore Year

Fall Semester	Credit	Spring Semester	Credit
MA 242 Calculus III ³	4	MA 341 Applied Diff. Equations I ³	3
ME 321 Fund. of Air Quality & Climate Change ²	3	ME 200 Intro to Oceanography ²	3
ME 315 Math. Methods in Atmos. Sci. ²	4	ME 210 Oceanography Lab ²	1
PY 205 Physics Engr & Sci I ^{1, B}	3	ME 312 Atmospheric Thermodynamics ²	4
PY 206 Physics for Engineers & Scientists I Lab	1	PY 208 Physics Engr & Sci II ^{3, B}	3
HES *** Health & Exercise Studies Course ^E	1	PY 209 Physics for Engineers & Scientists II Lab	1
	16		15

Handwritten notes:
 - Red circles around ME 315, ME 200, and ME 210.
 - Red arrow pointing from ME 315 to ME 200 with text "move to Sp".
 - Red arrow pointing from ME 200 and ME 210 to the right with text "move to fall for year".
 - Red text: "move to fall for year", "Compatible option 3, 4".
 - Red numbers: 16, 14.

Junior Year

Fall Semester	Credit	Spring Semester	Credit
Geophysical Science Elective ^{2,3,8}	3	Advanced Writing Elective ⁹	3
MEA 421 Atmospheric Dynamics I ¹	3	MEA 412 Atmospheric Physics ²	3
MEA 460 Physical Oceanography ²	3	MEA 422 Atmospheric Dynamics II ¹	3
GEP Humanities Req. ^c	3	MEA 462 Obser Methods & Data Analysis ²	3
ST 380 Prob & Stat for Phys ³	3	GEP Social Science Req. ^d	3
	15		15

Handwritten notes:
 - Red circles around MEA 460, GEP Humanities Req.^c, ST 380, MEA 462, and GEP Social Science Req.^d.
 - Arrows pointing from ST 380 to "move to fall sygr" and from MEA 462 to "move to Sp semester yr".
 - An arrow pointing from the bottom of the Junior Year table to the top of the Senior Year table labeled "move to SP Jr year".
 - A note "Engineers" next to ST 380.
 - A note "move to fall" next to ST 380.
 - A note "move to Sp semester yr" next to MEA 462.

Senior Year

Fall Semester	Credit	Spring Semester	Credit
Approved Elective ^{2,7}	2	Approved Advised Elective ^{2,8} 7	3
GEP Interdisc. Persp. Req. ^g	1-2	GEP Humanities Requirement ^c stays	3
GEP Social Science Req. ^d	3	GEP Additional Breadth Requirement ^f	3
MEA 443 Syn Weather Anal & Forecast ²	4	MEA 467 Marine Meteorology ²	3
MEA 455 Micrometeorology ²	3	Restricted Elective^{2,9}	3 delete
MEA 495 Senior Seminar in MEAS	1		
	14-15		15

Handwritten notes:
 - Red circles around Approved Elective^{2,7}, GEP Social Science Req.^d, and MEA 495.
 - An arrow pointing from GEP Social Science Req.^d to "move to Sp Jr year".
 - A note "Approved" above Advised Elective^{2,8}.
 - A note "stays" next to GEP Humanities Requirement^c.
 - A note "delete" next to Restricted Elective^{2,9}.
 - A note "more to Sp Jr year" below MEA 495.

Minimum Credit Hours Required for Graduation*^{1,2,3,4,5,6,7,8,9}:

123 / 20

Major/Program Footnotes

1. Grade of C- or higher in CH 101; ENG 101; MA 141, 241; MEA 421, 422; PY 205.
2. No more than one D will be accepted in MEA or Approved Elective courses.
3. No more than one additional D will be accepted in other math or science courses.
4. ~~Substitute GEP Social Science Requirement in fall if ENG 101 must be taken in spring due to course availability.~~ *Computing option*
5. E 115 may substitute for COS 100.
6. Geophysical Science Elective is selected from among MEA 101, PY 123, PY 124, ~~SSC 220, or CE 200.~~ *SSC 220*
7. Advanced Writing Elective must be selected from among ENG 331, ENG 332, or ENG 333. The Advanced Writing Elective may not be used to satisfy the GEP Humanities Requirement. It does satisfy the Communications in the Major Co-Requisite.
8. Approved Elective should be selected in consultation with advisor.
9. ~~Any meteorology course at the 400-level or above. Course choice affects career options. See advisor for appropriate course selection.~~

6. Advanced transfer students are permitted to sub math, science or eng. credits for CH 201, 202

* General Education Program (GEP) requirements and GEP Footnotes

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <https://oucc.dasa.ncsu.edu/general-education-program/>.

A. Mathematical Sciences (6 credit hours; one course with MA or ST prefix)

Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 141, MA 241

B. Natural Sciences (7 credit hours; include one laboratory course or course with a lab)

Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: PY 205/PY 206, PY 208/PY 209

C. Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none

D. Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none

E. Health & Exercise Studies (2 credit hours; at least one 100-level Fitness and Wellness Course)

Choose from the University approved GEP Health & Exercise Studies course list.

F. Additional Breadth (3 credit hours to be selected from the following checked University approved GEP course lists)

Humanities/Social Sciences/Visual and Performing Arts

G. Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MEA 100, *COS 100*

H. Introduction to Writing (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements

I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: none

J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: MEA 100

K. Foreign Language proficiency Proficiency at the FL_102 level is required for graduation.

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Spring 2019

Degree/Plan Title: BS in Meteorology

Concentration/Subplan Title: Marine Sciences

Plan SIS Code: 17METBS

Subplan SIS Code: 17METMAR

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 101 Chemistry- A Molecular Science ¹	3 CP	CH 201 Chemistry – A Quant Sci ^{3,6}	3
CH 102 General Chemistry Lab ³	1	CH 202 General Quant Lab ^{3,6}	1
MA 141 Calculus I ^{1,A}	4 CP	ENG 101 Academic Writing & Research ^{1,H}	4 CP
MEA 100 Earth Systems Science ^{2,G,I}	4 CP	MA 241 Calculus II ^{1,A}	4 CP
HESF 1** Health & Exercise Studies Course ^E	1	MEA 215 Introduction to Atmospheric Sciences ²	4 CP
COS 100 The Science of Change ^{5,G}	2		
	<i>Total: 15</i>		<i>Total: 16</i>
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MA 242 Calculus III ³	4	MA 341 Appl Differential Equations I ³	3
MEA 321 Fund. Of Air Quality & Climate Chg. ²	3	MEA 312 Atmospheric Thermodynamics ²	4
PY 205 Physics for Engineers & Scientists I ^{1,B}	3 CP	MEA 315 Mathematical Methods in Atmos. Sci. ²	4
PY 206 Physics for Engineers & Scientists I Lab ^{3,B}	1	PY 208 Physics for Engineers & Scientists II ^{3,B}	3
Computing Option ^{3,4}	3	PY 209 Physics for Engineers & Scientists Lab II ³	1
	<i>Total: 14</i>		<i>Total: 15</i>
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MEA 200 Intro. To Oceanography ²	3	Advanced Writing Elective ⁹	3
MEA 210 Oceanography Lab ²	1	Approved Elective ^{2,7}	2
MEA 421 Atmospheric Dynamics I ¹	3	MEA 412 Atmospheric Physics ²	3
Geophysical Science Elective ^{2,3,8}	3	MEA 422 Atmospheric Dynamics II ¹	3
GEP Social Sciences Requirement ^D	3	MEA 495 Junior Seminar in MEAS	1
ST 370 Prob & Stat for Engineers ³	3	GEP Additional Breadth Requirement ^F	3
	<i>Total: 16</i>		<i>Total: 15</i>
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MEA 460 Principles of Phys. Oce. ²	3	Approved Elective ^{2,7}	3
MEA 455 Micrometeorology ²	3	MEA 462 Obs. Methods in Marine Physics ²	3
GEP Humanities Requirement ^C	3	MEA 467 Marine Meteorology ²	3
HES_*** Health & Exercise Studies Course ^E	1	GEP Humanities Requirement ^C	3
MEA 443 Synoptic Weather Analysis & Forecast ²	4	GEP Social Sciences Requirement ^D	3
	<i>Total: 14</i>		<i>Total: 15</i>
Minimum Credit Hours Required for Graduation*: 120			

Major/Program Footnotes:

- Grade of C- or higher required in CH 101; ENG 101; MA 141, 241; MEA 421, 422; and PY 205.
- No more than one D will be accepted in MEA or Approved Elective courses.
- No more than one additional D will be accepted in other math or science courses.
- Computing Option: An MEA computing course, MA 116, PY 251 or CSC 113.
- E 115 may substitute for COS 100.
- Advanced transfer students are permitted to substitute mathematics, science, or engineering credits for CH 201, 202.
- Approved Electives should be selected in consultation with advisor.
- Geophysical Science Elective is selected from among MEA 101, PY 123, PY 124, or SSC 200.

9. Advanced Writing Elective must be selected from ENG 331, ENG 332, and ENG 333. The Advanced Writing Elective may not be used to satisfy the GEP Humanities requirement. It does satisfy the Communication in the Major Co-Requisite.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 141 & MA 241**
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **PY 205, PY 206 & PY 208**
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None**
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None**
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **COS 100 & MEA 100**
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **None**
- J. **Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **MEA 100**
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS

Format B

<u>Degree/Plan Title:</u> BS in Meteorology	<u>Plan SIS Code:</u> 17METBS
<u>Concentration/Subplan Title:</u> Marine Sciences	<u>Subplan SIS Code:</u> 17METMAR
<u>Indicate requirements status:</u> Current: Proposed: X	<u>Proposed Effective Semester:</u> Spring 2019
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
<u>METEOROLOGY CORE</u>		
MEA 100 EARTH SYSTEMS SCIENCE	4 CP	Interdisciplinary Perspectives 4 hours
MEA 215 INTRODUCTION TO ATMOSPHERIC SCIENCES	4 CP	
MEA 312 ATMOS THERMODYN	4	
MEA 315 MATH METHODS IN ATMOS SCI	4	
MEA 321 FUND AIR QUALITY & CLIMATE CHG	3	
MEA 421 ATMOS DYNAMICS I (C-wall)	3	
MEA 412 ATMOSPHERIC PHYSICS	3	
MEA 422 ATMOS DYNAMICS II (C-wall)	3	
MEA 443 SYNOPTIC WEA ANLY & FCST	4	Satisfies the Technology Fluency co-requisite
MEA 495 JUNIOR SEMINAR IN MEAS	1	
<u>MATH/STATISTICS/COMPUTER SCIENCE</u>		
COMPUTING OPTION (any MEA computing course, MA 116, PY 251 or CSC 113)	3	
MA 141 CALCULUS I (C-wall)	4 CP	Mathematics 4 hours
MA 241 CALCULUS II (C-wall)	4 CP	Mathematics 2 hours
MA 242 CALCULUS III	4	
MA 341 APPL DIFF EQ I	3	
ST 370 PROBABILITY & STATISTICS FOR ENGINEERS	3	
<u>CHEMISTRY/PHYSICS</u>		
CH 101 CHEM MOLECULAR SCI (C-wall)	3 CP	
CH 102 GEN CHEM LAB	1	
CH 201 CHEM-A QUANTI SCI	3	
CH 202 QUANT CHEM LAB	1	
PY 205 PHYSICS FOR ENGINEERS & SCI I (C-wall)	3 CP	Natural Science 3 hours
PY 206 PHYSICS FOR ENGINEERS & SCI I Lab	1	Natural Science 1 hour
PY 208 PHYSICS FOR ENGINEERS & SCI II	3	Natural Science 3 hours
PY 209 PHYSICS FOR ENGINEERS & SCI II Lab	1	
<u>GEOPHYSICAL ELECTIVE</u>		
GEOPHYSICAL ELECTIVE (MEA 101, PY 123, PY 124, or SSC 200)	3	
<u>APPROVED ELECTIVES</u>		
CONSULT WITH ADVISER (no course pattern)	5	
<u>Concentration Courses/Groups/Electives:</u>		
MEA 200 INTRO OCEANOGRAPHY	3	
MEA 210 OCEANOGRAPHY LAB	1	

MEA 455 MICROMETEOROLOGY MEA 460 PRIN PHYS OCEANOLOG MEA 462 METHODS MARINE PY MEA 467 MARINE METEOROLOGY	3 3 3 3	
No more than one D will be accepted in MEA or Approved Elective courses. No more than one additional D will be accepted in other math or science courses.		
Free Electives:		
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	94 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s): COS 100 (E 115 may substitute)	2	Interdisciplinary Perspectives 2 hours
Other: ADVANCED WRITING: ENG 331, ENG 332, or ENG 333	3	Satisfies Communication in the Major GEP co-requisite. May NOT be used to satisfy the GEP Humanities requirement.
Total credit hours under College Requirements:	5 Hours	

<u>NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</u>		<u>At least one of the following must be listed:</u>
<p><i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category <u>may not be subset</u> to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i></p> <p><i>Specific courses should not be listed in any of the fields below other than ENG 101.</i></p>		<ol style="list-style-type: none"> 1 Choose course(s) from the University Approved GEP course list for this category. 2 Minimum requirements are satisfied by Major/College course requirements. 3 Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category. 4 Co-requisite is satisfied by a Major/College course requirement. 5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts. 6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course requirements.
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course requirements.
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) Choose course(s) from the University Approved GEP course list for this category.
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) Choose course(s) from the University Approved GEP course list for this category.
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.</i>	3	(Choose statement 5 or 6) Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.
Interdisciplinary Perspectives (5 credits) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course requirements.

Health and Exercise Studies (Including one <i>Fitness and Wellness</i> course)	(2 credits)	2	Choose course(s) from the University Approved GEP course list for this category.
Total credit hours needed to complete GEP that are <u>not</u> satisfied as part of the Major/College requirements.		21 hours	
GEP Co-Requisites:			<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.</i>
U.S. Diversity co-requisite	(USD)	n/a	<i>(Choose statement 1 or 4)</i> Choose course(s) from the University Approved GEP course list for this category.
Global Knowledge co-requisite	(GK)	n/a	<i>(Choose statement 1 or 4)</i> Co-requisite is satisfied by a Major/College course requirement.
Foreign Language Proficiency		n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:			Place an X in the credit hour box to indicate below that the requirement is " Satisfied by College/Program Requirements "
Communication in the Major (Advanced Communication)		X	Satisfied by College/Program Requirements
Technology Fluency		X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.		120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.



College of Sciences

Department of Marine, Earth,
and Atmospheric Sciences

Campus Box 8208 / 1125 Jordan Hall
Raleigh, NC 27695-8208

919.515.3711
www.meas.ncsu.edu

Memorandum

To: Mike Mullen, Vice Chancellor and Dean of the Division of Academic and Student Affairs

From: Carrie Thomas, Director of Undergraduate Programs, Marine, Earth & Atmospheric Sciences

Revision of Curriculum to meet UNC Policy 400.1.5

Proposed effective date: January 2019

Plan and subplan affected: 17NATREBS-17NATREMC

List of revisions with reasons and impacts:

- 1) Require MEA 100 Earth Systems Science instead or NR 100 Intro to Natural Resources. In recent years our department has revised MEA 100 to serve as a gateway course for all of our majors. This curricula is the only one that does not currently require the course. Students will be better prepared for upper-level courses in MEA after taking MEA 100.
- 2) Allow students to double count required major courses for GEP requirements to reduce the number of credit hours taken for graduation to 120. Credits for MEA 100 (4) and COS 100 (2) will count toward the Interdisciplinary Perspectives GEP requirement.
- 3) Eliminate requirements to further reduce the number of credits required for graduation.
 - A) COM 110 Public Speaking. Students can still choose to take COM 110 to meet the Additional Breadth GEP requirement.
 - B) Adjust the math requirement to MA 131 and MA 231 by removing the option for MA 141 and MA 241. The vast majority of students choose to take MA 131/231. Students will still be allowed to substitute a higher calculus series if they choose. We will also no longer require MA 132 Computational Math. Students are learning the skills from thios course in the lab associated with MEA 100 Earth Systems Science and in MEA 210 Oceanography Lab.
 - C) Reduce the Advised Elective credits required from 6 to 3 credit hours. Advised electives were intended to provide depth within the major (300-level and above). In response to the reduction in number we have

narrowed the allowable type of course to limit them to advanced STEM courses at the 400-level and above.

- 4) Revise course requirements to reflect current catalog offerings:
 - A) BIO 140 and BIO 141 Animal Diversity and Lab (3 + 1 credits) is now ZO 350 Animal Phylogeny and Diversity (4 credits). BIO 141 is no longer taught and BIO 140 does not include the same depth and topics as ZO 350.
 - B) PB/BIO 360 and 365 Ecology and lab (3 + 1 credits) is now PB/AEC 360 Ecology (4 credits)
 - C) SSC 200 Soil Science (4 credits) is now SSC 200 Soil Science and SSC 201 Soil Science Lab (3 + 1 credits)
 - D) PRT 462 Intro to GIS (3 credits) is now GIS 280 (3 credits) and required. It was previously offered as a MEA Option. The vast majority of students chose the GIS course. Over time, some experience with GIS has become expected for job applicants in this discipline so the option is removed and the course is required.
 - E) ZO 420 Introduction to Fisheries Science is now AEC 420 Introduction to Fisheries Science and is offered in the spring not the fall
- 5) Rearrange semester-by-semester plan to balance hours, to ensure pre-requisite sequencing, and to match scheduling.
 - A) ENG 101 is moved from the fall semester to the spring semester of the freshman year.
 - B) The GEP Additional Breadth requirement is moved from the spring semester to the fall semester of the senior year.
 - C) AEC 420 and ZO 350 are spring courses so they were moved from the fall. MEA 220 is now fall only, so it was moved from spring.
- 6) Update footnotes to reflect changes made to the curriculum.

Attachments:

Consultations

Signature page

Current Semester-by-Semester Plan

Proposed Format A

Proposed Format B

Consultations

From: Eric Money <esmoney@ncsu.edu>
Date: Wed, Sep 5, 2018 at 1:10 PM
Subject: Re: consultation for curricular revisions
To: Carrie Thomas <cjthomas@ncsu.edu>
Cc: Ross Meentemeyer <rkmeente@ncsu.edu>

Hi Carrie,
Since I handle most of the curricular stuff at the undergraduate level right now for GIS, I'm happy to provide a statement. I'll let Ross chime in if he needs to add anything:

The Center for Geospatial Analytics approves of updating the computing option for students in this curriculum to GIS 280: Introduction to GIS. This course is a revised version of the previous dual-listed course GIS 410/510 which no longer exists. GIS 280 was created in order to be more accessible to undergraduate students and it will be able to accommodate these students and we look forward to providing them this option in their curriculum.

Let me know if you need something else.

Best,

- Eric

On Wed, Sep 5, 2018 at 12:50 PM Carrie Thomas <cjthomas@ncsu.edu> wrote:
Dear Ross,

I am revising the MEAS undergraduate curricula to align them with the new limit on credit hours. As I am revising them, I am updating our computing option. They are all dated in terms of the GIS course option, previously GIS 410 or 510. I am writing to ask if you could provide me a blanket email that I can attach to each supporting GIS 280 as a computing option for the following majors in MEAS:

BS in Geology

BS in Marine Science

BS in Natural Resources with a concentration in Marine and Coastal Resources.

This should not result in a change in the number of students taking GIS 280. They already take it and we sub it in for the old 410/510 requirement.

Thank you,
Carrie

From: David Crouse <crouse@ncsu.edu>
Date: Thu, Sep 6, 2018 at 5:05 PM
Subject: Re: course consultation
To: Carrie Thomas <cjthomas@ncsu.edu>

Yes, that is fine. In your 8-semester views, it is best if the students take 200 & 201 concurrently, but it is not required. That being said, if taken in separate semesters, 200 must come before 201.

David

Dr. David Crouse
Undergraduate Teaching Coordinator and
Alumni Distinguished Undergraduate Professor
Crop and Soil Sciences
go.ncsu.edu/recruits

On Thu, Sep 6, 2018 at 5:02 PM Carrie Thomas <cjthomas@ncsu.edu> wrote:
Hi David,
I hope your semester is going well. I am working on our revisions to bring our graduation requirements to 120 hours. Our natural resources degree with a concentration in marine and coastal resources has always required SSC 200 and it is still listed as 4 credits. You all split the lecture and lab some time ago and we did not catch it then, so I would like to include it in this set of revisions. Are you okay with me requiring SSC 200 and SSC 201? There are generally 2-3 NRC students taking SSC 200 each year.

Thanks,
Carrie

No response.

From: Carrie Thomas <cjthomas@ncsu.edu>
Date: Thu, Sep 6, 2018 at 10:57 AM
Subject: Course consultation
To: Jennifer Campbell <jlcampbe@ncsu.edu>

Dear Jenny,

I am finalizing our curricular changes to bring our degree programs to 120 credit hours, and I am trying to clean up some other issues at the same time. Our natural resources degree requires BIO 140 and BIO 141. When biology stopped offering BIO 141, we began substituting ZO 350. I would like to make that change official. There are about 8-10 majors in that degree program, so we generally have 2 students in ZO 350 from that program each year. Do you see any issues with this? If not, would you please provide a consultation for me to attach to the curricular revision?

Thanks,
Carrie

**Signature Page
MEAS Curricular Revisions**

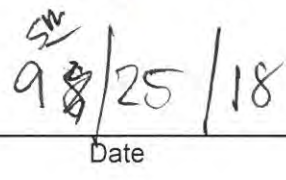
Endorsed By:

 _____
Head, Department/Program


Date

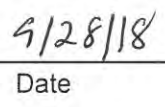
Recommended By:

 _____
Chair, College Curriculum Committee


Date

Endorsed By:

 _____
College Dean


Date

Recommended By:

Chair, University Courses & Curricula Committee

Date

Approved By:

Dean, (DASA)

Date

Current

Natural Resources (BS): Marine & Coastal Resources (17NATREBS-17NATREMC)

Freshman Year

Fall Semester	Credit	Spring Semester	Credit
ENG 101 Academic Writing & Research ^{1,3,4}	4	BIO 181 Intro Biology I ⁴	4
MA 131 Calculus Life & Mgmt Sciences A ^{3,4} or MA 141 Calculus I ^{3,A}	3-4	COM 110 Public Speaking	3
MEA 101 Geology I: Physical ⁴	3	MA 132 Computational Math ^{5,A} and MA 231 Calc Life & Mgmt B ^{5,A} or MA 241 Calculus II ^{5,A}	4-3
MEA 110 Geology Lab ⁴	1	MEA 130 Intro to Weather & Climate ⁴	3
MEA 100 Earth Systems Sci ^{3,6}	4	MEA 135 Weather & Climate Lab ⁴	1
NR-100 Intro to Natural Resources ⁴	2		
HES ¹ *** Health & Exercise Studies Course ^E	1		
COS 100 Perspectives on Learning ²	1		
	14		15

Sophomore Year

Fall Semester	Credit	Spring Semester	Credit
CH 101 Chemistry- Molecular Science ^{1,3}	3	CH 201 Chem. Quant Sci ^{5,B}	3
CH 102 General Chemistry Lab ^{5,B}	1	CH 202 General Quant Lab ⁵	1
MEA 200 Intro to Oceanography ⁴	3	Economics ⁴	3
MEA 210 Intro to Ocean Lab ⁴	1	MEA 220 Marine Biology ⁴	3
Political Science ^{6,D}	3	MEA 250 Intro Coastal Environments ⁴	3
BIO 140 Animal Diversity ⁵	3	MEA 251 Intro Coastal Enviro Lab ⁴	1
BIO 141 Animal Div. Lab ⁵	1	HES ¹ *** Health & Exercise Studies Course ^{8,E}	1
	15		15

Junior Year

Fall Semester	Credit	Spring Semester	Credit
GEP Humanities Requirement ^C	3	Chemistry Option ^{4,9} 3,8	3
PB/BIO 360 Intro. to Ecology ^{3,4} 3	3	Advanced Writing Elective ¹² 10	3
PB 365 Ecology Lab⁵	1	ARE 336 Intro Resource and Env Econ ⁶	3
PY 211 (or 205) College Physics ^{3,1}	4	MEA 469 Ecology of Coastal Resources ^{4,3}	3
ST 311 Intro to Statistics ^{5,4}	3	PY 212 (or 208 Physics for Engineers & Scientists & PY 209 Physics for Engineers & Scientists II Lab) Physics II^{4,5}	4
	14		16

Summer

Fall Semester	Credit
MEA 459 Coastal Processes ^{4,3}	5

Senior Year

Fall Semester	Credit	Spring Semester	Credit
Advised Elective^{4,10} delete	3	Advised Elective ^{4,10} 3,9	3
GEP Humanities Requirement ^C	3	MEA Option ^{4,11} GIS 280 3,11	3
GEP Interdisciplinary Perspectives Req.^G delete	2-3	NR 400 Mgmt Natural Resources ^{4,3}	4
PS 336 Global Enviro Politics ^J	3	SSC 200 Soil Science ⁵	4
ZO 420 Fishery Science^{5,4} REC	3	SSC 201 Soil Science Lab³	1
	12	GEP Additional Breadth Requirement ^F	3
	14-15		17

Minimum Credit Hours Required for Graduation*^{I,K}:

120
126

Major/Program Footnotes

1. ~~ENG 101 will not be available for all students in fall of their freshman year. Students not enrolled in ENG 101 should register for this course the following fall, and substitute COM 110 in their first semester.~~ *delete*
2. E 115 may substitute for COS 100.
3. Grade of C- or higher required in CH 101; ENG 101; MA 131 or MA 141; PY 211 or PY 205.
4. No more than one D will be accepted in major core courses.
5. No more than one D will be accepted in other math and science courses.
6. PS 201 or PS 202.
7. EC (ARE) 201 or EC 205.
8. HES 253 or HES 226. The PE option satisfies 1 credit of the GEP Health & Exercise Studies requirement.
9. MEA 323 or MEA 473.
10. ~~Advised electives to be chosen with advisor and should be an MEA course at the 300 level or above or an IDS course at the 300 level or above.~~ *a science/math/engineering/IT/GIS course at the 300 level or higher*
11. ~~MEA Option is any MEA course or PRT 462 Introduction to GIS.~~
12. Advanced Writing Elective must be selected from ENG 331, ENG 332, and ENG 333. The Advanced Writing Elective may not be used to satisfy the GEP Humanities requirement. It does satisfy the Communication in the Major Co-Requisite.

*General Education Program (GEP) requirements and GEP Footnotes

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <https://oucc.dasa.ncsu.edu/general-education-program/>.

A. Mathematical Sciences (6 credit hours; one course with MA or ST prefix)

Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 131, ~~MA 132~~, MA 231, ~~MA 141~~, ~~MA 241~~

B. Natural Sciences (7 credit hours; include one laboratory course or course with a lab)

Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: CH 101, CH 102, CH 201

C. Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: none

D. Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: PS 201, PS 202, ARE 201, EC 201, EC 205

E. Health & Exercise Studies (2 credit hours; at least one 100-level Fitness and Wellness Course)

Choose from the University approved GEP Health & Exercise Studies course list.

F. Additional Breadth (3 credit hours to be selected from the following checked University approved GEP course lists)

Humanities/Social Sciences/Visual and Performing Arts

G. Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: ARE 336, *MEA 100, COS 100*

H. Introduction to Writing (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements

I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: none

J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: PS 336, *MEA 100*

K. Foreign Language proficiency Proficiency at the FL_102 level is required for graduation.

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Spring 2019

Degree/Plan Title: BS in Natural Resources

Concentration/Subplan Title: Marine and Coastal Resources

Plan SIS Code: 17NATREBS

Subplan SIS Code: 17NATREMC

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
MA 131 Calculus Life & Mgmt Sciences A ^{1,A}	3 CP	BIO 181 Intro Biology I ⁴	4 CP
MEA 100 Earth Systems Science ^{3,G,I}	4	ENG 101 Academic Writing & Research ^{1,H}	4
MEA 101 Geology I: Physical ³	3	MA 231 Calculus Life & Mgmt Sciences B ^{4,A}	3 CP
MEA 110 Geology Lab ³	1	MEA 130 Intro to Weather & Climate ³	3
COS 100 Perspectives on Learning ^{2,G}	2	MEA 135 Weather & Climate Lab ³	1
HESF 1** Health & Exercise Studies ^E	1		
	<i>Total: 14</i>		<i>Total: 15</i>
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 101 Chemistry- Molecular Science ^{1,B}	3 CP	CH 201 Chem. Quant Sci ^{4,B}	3
CH 102 General Chemistry Lab ^{4,B}	1	CH 202 General Quant Lab ⁴	1
MEA 200 Intro to Oceanography ³	3 CP	Economics ^{6,D}	3
MEA 210 Intro to Ocean Lab ³	1	MEA 250 Intro Coastal Environments ³	3
Political Science ^{5,D}	3	MEA 251 Intro Coastal Enviro Lab ³	1
MEA 220 Marine Biology ³	3	PE Option ^{7,E}	1
		ZO 350 Animal Phylogeny & Diversity ⁴	4
	<i>Total: 14</i>		<i>Total: 16</i>
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
GEP Humanities Requirement ^C	3	Chemistry Option ^{3,8}	3
PB 360 Introduction to Ecology ⁴	4	Advanced Writing Elective ¹⁰	3
PY 211 College Physics I ¹	4	ARE/EC 336 Intro Resource and Env Econ ⁶	3
ST 311 Intro to Statistics ⁴	3	MEA 469 Ecology of Coastal Resources ³	3
		PY 212 College Physics II ⁴	4
	<i>Total: 14</i>		<i>Total: 16</i>
SUMMER SESSION II			
MEA 459 Coastal Processes ³ 5 cr.			
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
GEP Humanities Requirement ^C	3	AEC 420 Fishery Science ⁴	3
GEP Additional Breadth Requirement ^F	3	GIS 280 Introduction to GIS ³	3
PS 336 Global Enviro Politics ^J	3	NR 400 Mgmt Natural Resources ³	4
Advised Elective ^{3,9}	3	SSC 200 Soil Science ⁴	3
		SSC 201 Soil Science Lab ⁴	1
	<i>Total: 12</i>		<i>Total: 14</i>
Minimum Credit Hours Required for Graduation*: 120			

Major/Program Footnotes:

- Grade of C- or higher required in CH 101; ENG 101; MA 131; PY 211.
- E 115 may substitute for COS 100.
- No more than one D will be accepted in major core courses.
- No more than one D will be accepted in other math and science courses.

5. PS 201 or PS 202
6. EC (ARE) 201 or EC 205
7. HESO 253 or HESA 226. The PE option satisfies 1 credit of the GEP Health & Exercise Studies requirement.
8. MEA 323 or MEA 473
9. Advised electives to be chosen with advisor and should be a science, math, engineering or GIS course at the 400 level or higher.
10. Advanced Writing Elective must be selected from ENG 331, ENG 332, and ENG 333. The Advanced Writing Elective may not be used to satisfy the GEP Humanities requirement. It does satisfy the Communication in the Major Co-Requisite.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 131, MA 231**
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101, CH 102, CH 201**
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **none**
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **PS 201, PS 202, ARE 201, EC 201, EC 205**
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MEA 100, ARE/EC 336, COS 100**
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **none**
- J. **Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **PS 336, MEA 100**
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS

Format B

<u>Degree/Plan Title:</u> BS in Natural Resources	<u>Plan SIS Code:</u> 17NATREBS
<u>Concentration/Subplan Title:</u> Marine and Coastal Resources	<u>Subplan SIS Code:</u> 17NATREMC
<u>Indicate requirements status:</u> Current: Proposed: X	<u>Proposed Effective Semester:</u> Spring 2019
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
Indicate if course or course groupings have a C-wall or MGPA requirement		List GEP category and hours satisfied by a Major requirement
<u>MAJOR CORE COURSES</u>		
MEA 100 EARTH SYSTEMS SCIENCE	4	Interdisciplinary Perspectives 4 hours, Satisfies the Global Knowledge Co-Requisite
MEA 101 GEOLOGY I PHYSICAL	3	
MEA 110 GEOLOGY I LABORAT	1	
MEA 130 INTR WEATH & CLIM	3	
MEA 135 INTR WEATH & CLIM LAB	1	
MEA 200 INTRO OCEANOGRAPHY	3 CP	
MEA 210 OCEANOGRAPHY LAB	1	
MEA 220 MARINE BIOLOGY	3	
MEA 250 INTRO COASTAL ENVI	3	
MEA 251 INTRO COASTAL ENVI LAB	1	
MEA 459 COASTAL PROCESSES	5	Satisfies the Technology Fluency Co-Requisite
MEA 469 ECOL COAST RESOURC	3	
GIS 280 INTRODUCTION TO GIS	3	
ADVISED ELECTIVE (any science, math, engineering or GIS course ≥400 level)	3	
CHEMISTRY OPTION (MEA 323 or MEA 473)	3	
NR 400 NAT RESOURCE MANAG	4	
<u>MATH/STATISTICS</u>		
MA 131 CALCULUS FOR LIFE AND MANAGE SCI A (C-wall)	3 CP	Mathematics 3 hours
MA 231 CALCULUS FOR LIFE AND MANAGE SCI B	3 CP	Mathematics 3 hours
ST 311 INTRO TO STAT	3	
<u>CHEMISTRY/PHYSICS/NATURAL SCIENCES</u>		
BIO 181 INTRO BIOLOGY I	4 CP	
CH 101 CHEM MOLECULAR SCI (C-wall)	3 CP	Natural Science 3 hours
CH 102 GEN CHEM LAB	1	Natural Science 1 hours
ZO 350 ANIMAL PHYLOGENY AND DIVERSITY	4	
CH 201 CHEM-A QUANTI SCI	3	Natural Science 3 hours
CH 202 QUANT CHEM LAB	1	
PB 360 ECOLOGY	4	
PY 211 COLLEGE PHYSICS I (C-wall)	4	
PY 212 COLLEGE PHYSICS II	4	
SSC 200 SOIL SCIENCE	3	
SSC 201 SOIL SCIENCE LAB	1	
AEC 420 INTRO FISH SCIENCE	3	
<u>HUMANITIES/SOCIAL SCIENCES</u>		
POLITICAL SCIENCE ELECTIVE (PS 201 or PS 202)	3	Social Science 3 hours
ECONOMICS ELECTIVE (ARE 201, EC 201, or EC 205)	3	Social Science 3 hours

RESOURCE ECONOMICS (ARE 336 or EC 336) PS 336 GLOBAL ENVIRON POL	3 3	Interdisciplinary Perspectives 3 hours Satisfies the Global Knowledge Co-Requisite
<u>PHYSICAL EDUCATION</u> HES_*** OPTION (PE 226 or PE 253)	1	Physical Education 1 hour
No more than one D will be accepted in major core courses. No more than one D will be accepted in other math and science courses.		
Concentration Courses/Groups/Electives:		
Free Electives:		
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	101 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s): COS 100 (E 115 can be substituted)	2	Interdisciplinary Perspectives 2 hours
Other: GRP 120 ADVANCED WRITING: ENG 331, ENG 332, or ENG 333	3	Satisfies Communication in the Major GEP Co-Requisite
Total credit hours under College Requirements:	5 Hours	

<u>NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</u>		At least one of the following must be listed:
<i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category <u>may not be subset</u> to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i>		1 Choose course(s) from the University Approved GEP course list for this category.
<i>Specific courses should not be listed in any of the fields below other than ENG 101.</i>		2 Minimum requirements are satisfied by Major/College course requirements.
		3 Major/College course requirement satisfies <u>X</u> credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
		4 Co-requisite is satisfied by a Major/College course requirement.
		5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.
		6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements:	Credit	How will the GEP requirement be met?

<i>Minimum 39-40 hrs</i>	<i>hours</i>	<i>(Choose applicable statement from 1-6 listed above)</i>
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	X	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course requirements.
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	X	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course requirements.
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	6	(Choose statement 1, 2 or 3) Choose course(s) from the University Approved GEP course list for this category.
Social Sciences (6 credits) (Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	X	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course requirements.
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.	3	(Choose statement 5 or 6) Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.
Interdisciplinary Perspectives (5 credits) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	X	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course requirements.
Health and Exercise Studies (2 credits) (Including one Fitness and Wellness course)	1	Major/College course requirement satisfies 1 credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
Total credit hours needed to complete GEP that are not satisfied as part of the Major/College requirements.	14 hours	
GEP Co-Requisites:		<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.</i>
U.S. Diversity co-requisite (USD)	n/a	(Choose statement 1 or 4) Choose course(s) from the University Approved GEP course list for this category.
Global Knowledge co-requisite (GK)	n/a	(Choose statement 1 or 4) Co-requisite is satisfied by a Major/College course requirement.
Foreign Language Proficiency	n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:		Place an X in the credit hour box to indicate below that the requirement is "Satisfied by College/Program Requirements"
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements
Technology Fluency	X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.

September 24, 2018

From: Terrie Litzenberger
Undergraduate Program Coordinator, Environmental Technology and Management (ETM) Program
Department of Forestry and Environmental Resources

To: University Courses and Curricula Committee

Re: Proposal to Revise Degree Program in Environmental Technology and Management

By agreement among the faculty in the Environmental Technology and Management Program and the Department Head, the Department of Forestry and Environmental Resources requests the revision of the required courses in the degree program of Environmental Technology and Management.

Justification:

The proposed revisions are in response to the stated expectation that NC State degree programs can be completed in 120 credits.

General Revisions

1. Replacement of NR 100 with ENV 100 and ENV 101
Explanation: All ETM first year students participate in the Environmental First Year program. ENV 100 and ENV 101 are the introduction courses for the ENVFY program. NR 100 is no longer taught.
2. Course(s) in the major may double-count to satisfy Social Sciences requirements. Three hours of an Economics Elective (EC 201, EC 205, ARE 201) and three hours of a Policy Elective (PS 320, PS 336, ARE 309, NR 460) will be required. The additional 3 hours of social sciences has been removed.
3. Course(s) in the major may double-count to satisfy Interdisciplinary Perspectives requirements. Three hours in the major will be changed from degree IP requirements of IDS 201 or STS 302 or PHI 340 to require ES 100 or MEA 100 or FW 221.
4. Specific ET labs required in designated semesters have been changed to Environmental Technology Lab Electives that will include a choice of any listed ET labs (ET 201, ET 202, ET 203, ET 301, ET 302, ET 303, and ET 401). Five labs will still be required.
5. Ecology requirements have been changed to Ecology Elective which includes PB 360, AEC 360, FOR 260 Forest Ecology instead of PB 360/365 or BIO 360.
6. ET 460 has been changed to Capstone Elective that will include ET 460, ES 400 or NR 406.
7. Replacement of ET 490 with NR 301. ET 490 (Senior Seminar in Environmental Technology) will be replaced with NR 301(Practicum for Professional Development). ET 490 will no longer be taught.
8. Courses in advised electives suggested list have been updated to remove courses that are no longer taught and replaced with additional courses from our Department/College.

9. Replacement of ET 252 or GIS 410 with Spatial Technology Elective (GIS 280, FOR 353). GIS 410 no longer exists and ET 252 is no longer being taught and will be removed from the course catalog.

Implications

1. The orientation courses ENV 100 and 101 (2 and 1 credit hours) take the place of NR 100. This will allow ETM freshmen to be a part of the Environmental First Year program which gives freshmen students an orientation to the University and additional advising information. It also provides students investigation into other majors in our Department as well as the opportunity to engage with freshmen students of other majors as well as peer mentoring of upper-class environmental major students.
2. ET 460 has been added to a Capstone Elective category which allows ETM students to participate in cross Departmental capstone courses. It also allows students options for taking a capstone course in the fall as well as the spring semester which may decrease time to completion of the ETM degree.
3. ET 252 or GIS 410 have been replaced with a Spatial Technology Elective. The elective choices currently include GIS 280 (Intro to GIS) or FOR 353 (Air Photo Interpretation which includes geospatial data collected in forestry, environmental, and natural resource inventory and analyses). This gives the students experience in the application of GIS and geospatial data collection in the environmental and natural resource fields.

Consultation Statement:

All required consultations have been within our Department and College.

Department	Contact Name	Statement

Proposed implementation date: Fall 2019

Impact on Students:

Students entering the revised ETM degree program will have five fewer credit hour requirements for graduation. Double counting Social Science and Interdisciplinary Perspective University GEP requirements within the degree remove 6 credit hours. The removal of NR 100 and the replacement with ENV 100 and ENV 101 will add one hour. This reduces our credit hours from the current 125 to 120 minimum for graduation. Some course requirements in the degree have been changed to categorical electives. This gives the students more flexibility especially in the semester a course can be taken as well as additional breadth in the curriculum. These changes will have minimal impacts and may prove to have positive impacts on student learning outcomes and meeting program objectives in the Environmental Technology and Management degree.

Budget: No new resources are needed.

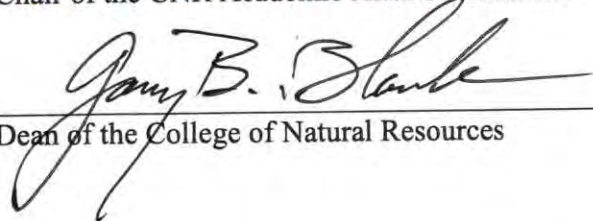
Current CIP: 15.0507
Environmental Technology and Management

Approval Signatures:



Chair of the CNR Academic Affairs Committee

9-27-18
Date



Dean of the College of Natural Resources

28 Sept 2018
Date

Chair, University Courses & Curricula Committee

Date

Dean, Undergraduate Academic Program

Date

FORMAT A (SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Fall 2019

Degree/Plan Title: B.S Environmental Technology and Management Concentration/Subplan Title:

Plan SIS Code: 15ENVTBS

Subplan SIS Code:

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR

FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
ENV100/101 Environmental First Year	3	CH 101 Chemistry – A Molecular Science*	3 CP
ENG 101 Academic Writing & Research*	4	CH 102 General Chemistry Lab*	1 CP
MA 131 or Ma 141 Elements of Calculus* ¹	3 or 4 CP	ET 105 Intro to Environmental Regulations	1
BIO 181 Intro Bio Ecol/Div*	4 CP	GEP IP Major requirement ²	3
HESF 1** Fitness & Wellness*	1	Economics Requirement* ³	3
		GEP Humanities Requirement*	3
		HES Elective *	1
	Total: 15-16		Total: 15

SOPHOMORE YEAR

FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
Environmental Technology Lab Elective ⁴	1	Environmental Technology Lab Elective ⁴	1
Ecology Elective ⁵	4 CP	GEP Additional Breadth*	3
Policy Requirement * ⁶	3	PY 131 Conceptual Physics or PY 211 College Physics *	4 CP
SSC 200 Soil Science	3 CP	ST 312 or Ma 231	3
SSC 201	1 CP	GEP Humanities Requirement*	3
ST 311 Intro to Statistics*	3		
	Total: 15		Total: 14
SUMMER	CREDITS		
ET 330 Environmental Technology Practicum	3		
	Total: 3		

JUNIOR YEAR

FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
Environmental Technology Lab Elective ⁴	1	Environmental Technology Lab Elective ⁴	1
CH 220 & CH 222 or CH 221 & CH 222 Organic Chemistry	4 CP	ET 310 Environmental Monitor & Analysis	3 CP
Spatial Technology Elective ⁷	3	ET 320 Fundamentals of Air Pollution	3
NR 301 Professional Development	1	CH 201 Chemistry A Quantitative Science and CH 202 Quantitative Chemistry Lab or	
Advised Elective ⁹	4	NR 300 Natural Resource Measurements	4
		Advised Elective ⁹	4
	Total:14		Total: 15

SENIOR YEAR

FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
Environmental Technology Lab Elective ⁴	1	Capstone Elective ⁸	3
TOX 415 Toxicological and Environmental Chemistry or CH 223/224 Organic Chemistry ²	4	GEP IP Elective	2 or 3
ET 455 Adaptive Management	3	Advised Electives ⁹	7
NR484 Environmental Impact Assessment or NR 420 Wetlands and Watershed Hydrology	4	Free Elective	3
Advised Elective ⁹	3		
	Total: 15		Total: 14 - 15

Minimum Credit Hours Required for Graduation*: 120

Major/Program Footnotes:

¹Students with appropriate math skills are encouraged to take MA 141.

²Select from ES 100 or MEA 100 or FW 221.

³Select from EC 201 or EC 205 or ARE 201

⁴ET Lab Electives (5 credit hours minimum) Fall: ET 201, ET 203, ET 301, ET 401
Spring: ET 202, ET 302, ET 303

⁵Select from PB 360, AEC 360, FOR 260

⁶Select from PS 320, PS 336, ARE 309, NR 460

⁷Select from GIS 280 or FOR 353

⁸Select from ET 460, ES 400, NR 406

⁹Advised Electives: Students are encouraged to select courses that will fulfill an academic minor. Courses should enhance students' career objectives and must be approved by faculty advisor. Listed below are recommended courses: FOR 150, FOR 248, FOR 260, FOR 304, FOR 330, FOR 339, FOR 353, FOR 414, FOR 420, MB 351/352, MB 409, MB411/412, MEA 101/102, MEA 110/111, MEA 130, MEA 135, MEA 140, MEA 200, MEA 210, MEA 213, MEA 214, MEA 250, MEA 251, MEA 300, MEA 323, TOX 201, TOX 401, TOX 415, TOX 495, NR 219, NR 400, NR 350, NR 421, PB 200, PB 213, PB 220, PB 400, PB 403, PB 413, PB 413, PB 421, PB480, PP315, PP 460, SSC 341, SSC 361, SSC 452,SSC 461, SSC 470, ST 350, ST 361, ST 370, ZO 220, ZO419, ZO 441/442, ZO 460, GIS 280, SMT 200, SMT 201, SMT 310, WPS 476, ES 113, ES 150, ES 200, ES 300, ES 400, COM 436, ET 120, ET 220, ET 255, ET 262, ES 113, ES 150, ES 200, ES 300, ES 400
Renewable Energy Assessment Minor courses: ET 120, ET 220, ET 255, ET 262, ES 300

Courses cannot be counted toward both core course requirements and advised electives.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 131, MA 141, ST 311
 - B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: CH 101 and CH 102, PY 131, PY 211, BIO 181, PB 360 or AEC 360 or FOR 260
 - C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: None
 - D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: ARE 201 or EC 205 or EC 201 and PS 320 or PS 336 or ARE 309 or NR 460
 - E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
 - E. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
Humanities/Social Sciences/Visual and Performing Arts
 - G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: FW 221 or ES 100 or MEA 100
 - H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)
- The following Co-Requisites must be satisfied to complete the General Education Program requirements:**
- L. **U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: None
 - J. **Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: ES 100, FW 221
 - K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

**College of Natural Resources, NCSU
Forestry and Environmental Resources Department
Environmental Technology and Management
Effective: 01/2011**

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
NR 100 Introductions to Natural Resources	2	CH 101 Chemistry- A Molecular Science	3
BIO 181 Introductory Biology, Ecology, Evolution, and Biodiversity	4	CH 102 General Chemistry Lab	1
GEP Requirement Additional Breadth Elective*	3	ES 100 Intro to Environmental Sciences	3
ENG 101 Academic Writing & Research*	4	ET 105 Intro to Environmental Regulations	1
MA 121 Elements of Calculus or MA 131 Calculus for Life/Mgmt. Sci. A	3	EC 201 Principles of Microeconomics or EC 205 Fundamentals of Economics or ARE 201 Intro to Ag & Resource Economics*	3
		GEP Requirement Humanities Elective*	3
		HES_***Health & Exercise Studies Course*	1
	<i>Total: 16</i>		<i>Total: 15</i>
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
ET 201 Environmental Technology Lab I or ET 203 Pollution Prevention	1	PY 131 Conceptual Physics or PY 211 College Physics I	4
PB 360 Introduction to Ecology ¹	4	ET 202 Environmental Technology Lab II	1
ST 311 Introduction to Statistics	3	ET 252 Intro. To Spatial Info. Technology or GIS 410 Intro to Geographic Inform. Systems	3
PS 320 US Environ. Law and Politics or PS 336 Global Environmental Politics or ARE 309 Environ. Law & Economic Policy	3	ST 312 or MA 231	3
SSC 200 Soil Science	4	GEP Requirement Social Science Elective*	3
HES_*** Health& Exercise Studies Course*	1	Advised Electives ²	3
	<i>Total: 16</i>		<i>Total: 17</i>
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 220 Introduction to Organic Chemistry or CH 221/222 Organic Chemistry I	4	ET 302 Environmental Technology Lab IV or ET 303 Lab Safety Systems and Management	1
ET 301 Environmental Technology Lab III	1	ET 310 Environmental Monitor & Analysis	3
GEP Requirement Humanities Elective*	3	ET/MEA 320 Fundamentals of Air Pollution	3
GEP Requirement Interdisciplinary Perspective	2-3	CH 201 Chemistry A Quantitative Science and CH 202 Quantitative Chemistry Lab or NR 300 Natural Resource Measurements	4
Advised Electives ²	4	Advised Elective ²	3
	<i>Total: 14-15</i>		<i>Total: 14</i>
SUMMER			
ET 330 Environmental Technology Practicum	3 Credits		
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
TOX 415 Toxicological and Environmental Chemistry or CH 223/224 Organic Chemistry 2	4	ET 460 Practice of Environmental Technology ³	3
ET 401 Environmental Technology Lab V	1	ET 490 Seminar in Environmental Technology	1
ET 455 Adaptive Management or ET 470 Environmental Forensics ³	3	IDS 201 Environmental Ethics or STS 302 Technology and Human Values or PHI 340 Philosophy of Science	3
NR484 Environmental Impact Assessment or NR 420 Wetlands and Watershed Hydrology	4	Advised Elective ²	4
Advised Elective ²	3	Free Elective	3
	<i>Total: 15</i>		<i>Total: 14</i>
Minimum Credit Hours Required for Graduation * I,J,K: 124			

Major/Program Footnotes:

¹FOR 260 may be substituted for PB 360

²Advised Electives: Students are encouraged to select courses that will fulfill an academic minor. Courses should enhance students' career objectives and must be approved by faculty advisor. Listed below are recommended courses:

ET 470*, ET 410, FOR 221, FOR 248, FOR 260, FOR 330, FOR 339, FOR 414, FOR 415, FOR 420* MB 351/352, MB 409, MB411/412, MEA 101/102, MEA 110/111, MEA 130, MEA 135, MEA 140, MEA 200, MEA 210, MEA 213, MEA 214, MEA 250, MEA 251, MEA 300, MEA 323, TOX 201, TOX 401, TOX 415, TOX 495, NR 400, NR 350, NR 421, PB 200, PB 213, PB 220, PB 400, PB 403, PB 413, PB 421, PB480, PP315, PP 460, SSC 341, SSC 361, SSC 452, SSC 461, SSC 470, ST 350, ST 361, ST 370, ST 371, ST 372, ZO 220, ZO419, ZO 441/442, ZO 460

*ET 470 and FOR 420 cannot be counted towards both core course requirements and advised electives.

³ET 470 may be substituted for ET 460 if ET 455 is taken. ET 470 cannot be counted toward both core course requirements and advised electives.

*General Education Program (GEP) requirements and GEP Footnotes:

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <http://oucc.ncsu.edu/gep-courses>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 121 or MA 131 and ST 301 or ST 311
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: BIO 181 and CH 101/102
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list.
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: EC 201 or EC 205 or ARE 201. Select an additional course other than Economics.
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- E. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts.
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: IDS 201 or STS 302 or PHI 340
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements:

- L. **U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite.
- L. **Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: IDS 201 or STS 302 or PHI 340
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS

Format B

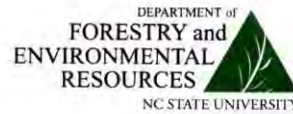
<u>Degree/Plan Title:</u> Environmental Technology and Management	<u>Plan SIS Code:</u> 15ENVTBS
<u>Concentration/Subplan Title:</u>	<u>Subplan SIS Code:</u>
<u>Indicate requirements status:</u> Current: Proposed: X <u>Proposed</u> Effective Semester: Fall 2019	
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
BIO 181 CP	4	Natural Sciences(4 hours)
MA 131 or MA 141 CP	3-4	Mathematical Sciences(3-4 hours)
CH 101 CP	3	Natural Sciences(4 hours)
CH 102 CP	1	Natural Sciences(1 hour)
ET 105	1	
ST 311	3	Mathematical Sciences (3 hours)
SSC 200 CP	3	
SSC 201 CP	1	
ET 455	3	
NR 301	1	
ET 310 CP	3	
ET 320	3	
ET 330	3	
<u>Concentration Courses/Groups/Electives:</u>		
MEA 100, ES 100, FW 221,	3	GEP Interdisciplinary Perspectives(3 hours)
Economics Elective: EC 201, EC 205, ARE 201	3	GEP Social Sciences (3 hours)
Ecology Elective: PB 360, ARE 360, FOR 260 CP	4	Natural Sciences (4 hours)
Policy Elective: PS 320, PS 336, ARE 309, NR 460	3	GEP Social Sciences (3 hours)
PY 131, PY 211	4	Natural Sciences (4 hours)
Spatial Science Elective: FOR 353, GIS 280	3	
ST 312 or MA 231,	3	Mathematical Sciences (3 hours)
CH 220/222 or CH 221/222 CP	4	Natural Sciences (4 hours)

CH 223/224 or TOX 415 NR 484 or FOR 420 CH 201/202 or NR 300 Environmental Technology Lab Electives: ET 201, ET 202, ET 203, ET 301, ET 302, ET 303, ET 401 Capstone Elective: ET 460, ES 400, FOR 406 Advised Electives: : FOR 150, FOR 248, FOR 260, FOR 304, FOR 330, FOR 339, FOR 353, FOR 414, FOR 420, MB 351/352, MB 409, MB411/412, MEA 101/102, MEA 110/111, MEA 130, MEA 135, MEA 140, MEA 200, MEA 210, MEA 213, MEA 214, MEA 250, MEA 251, MEA 300, MEA 323, TOX 201, TOX 401, TOX 415, TOX 495, NR 219, NR 400, NR 350, NR 421, PB 200, PB 213, PB 220, PB 400, PB 403, PB 413, PB 413, PB 421, PB480, PP315, PP 460, SSC 341, SSC 361, SSC 452,SSC 461, SSC 470, ST 350, ST 361, ST 370, ZO 220, ZO419, ZO 441/442, ZO 460, GIS 280, SMT 200, SMT 201, SMT 310, WPS 476, ES 113, ES 150, ES 200, ES 300, ES 400, COM 436, ET 120, ET 220, ET 255, ET 262, ES 113, ES 150, ES 200, ES 300, ES 400	4 4 4 5 3 18	
Free Electives:	3	
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	100 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s): ENV 100 ENV 101	2 1	
Other:		
Total credit hours under College Requirements:	100 hours	

NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS		At least one of the following must be listed:
<i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i>		1 Choose course(s) from the University Approved GEP course list for this category.
<i>Specific courses should not be listed in any of the fields below other than ENG 101.</i>		2 Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
		3 Co-requisite is satisfied by a Major/College course requirement.
		4 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.
		5 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above) <i>(Choose statement 1, 2 or 3)</i>
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>		Minimum requirements are satisfied by Major/College course requirements.
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>		<i>(Choose statement 1, 2 or 3)</i> Minimum requirements are satisfied by Major/College course requirements.
English 101 (C- or better required) (4 credits)	4	ENG 101

Humanities (6 credits) (Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	6	Choose course(s) from the University Approved GEP course list for this category.
Social Sciences (6 credits) (Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.		Minimum requirements are satisfied by Major/College course requirements.
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.	3	Choose course(s) from the University Approved GEP course list for this category.
Interdisciplinary Perspectives (5 credits) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	2-3	Major/College course requirement satisfies 3 credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
Health and Exercise Studies (2 credits) (Including one Fitness and Wellness course)	2	Choose course(s) from the University Approved GEP course list for this category.
Total credit hours needed to complete GEP that are not satisfied as part of the Major/College requirements.		
GEP Co-Requisites:		<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.</i>
U.S. Diversity co-requisite (USD)	n/a	Choose course(s) from the University Approved GEP course list for this category.
Global Knowledge co-requisite (GK)	n/a	Choose course(s) from the University Approved GEP course list for this category.
Foreign Language Proficiency	n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:		Place an X in the credit hour box to indicate below that the requirement is "Satisfied by College/Program Requirements"
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements
Technology Fluency	X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	Total Hours 120	As applicable, indicate here the overall GPA requirement for degree completion including course completion.



September 20, 2018

From: Dr. Lara Pacifici

Undergraduate Program Coordinator, Fisheries, Wildlife, and Conservation Biology Program
Department of Forestry and Environmental Resources

To: University Courses and Curricula Committee

Re: Proposal to Revise Degree Programs in Fisheries, Wildlife, and Conservation Biology

By agreement among the faculty in the Fisheries, Wildlife, and Conservation Biology Program and the Department Head, the Department of Forestry and Environmental Resources requests the revision of the required courses in the degree programs of Fisheries, Wildlife, and Conservation Biology.

Justification:

The proposed revisions affect all three Fisheries, Wildlife, and Conservation Biology (FWCB) concentrations and are in response to the stated expectation that NC State degree programs can be completed in 120 credits.

General Revisions

1. Removal of free elective.
Explanation: Removal of the free elective brings each concentration the 120 goal. The free elective is not a necessary component of the FWCB degree.
2. Replacement of NR 100 with ENV 100 and ENV 101
Explanation: All FWCB incoming first year students participate in the Environmental First Year program. ENV 100 and ENV 101 are the introduction courses for the ENVFY program. NR 100 is no longer taught.
3. Replacement of a technical elective (Conservation Biology and Fisheries concentrations) or wildlife elective (Wildlife concentration) with ENT 201.
Explanation: ENT 201 is already a popular choice among students. It fulfills the GEP Interdisciplinary Perspectives requirement, so by making it a requirement, the overall credits required for graduation is 120.
4. Replacement of GIS 410 with GIS 280. GIS 410 no longer exists. The GIS program developed GIS 280 to take its place.
5. All three concentrations have the option of CH 220/222 or CH 221/222 for the organic chemistry requirement. We have allowed either course for several years. Students work with advisors to determine which fits best with their career plans.
6. All three concentrations have the option of GN 301 or GN 311 for the genetics requirement. We have allowed either course for several years. Students work with advisors to determine which fits best with their career plans.

Implications for the Fisheries Concentration

1. ENV 100 and 101 take the place of NR 100
2. CH 220/222 or CH 221/222 are both acceptable for the organic chemistry requirement
3. GIS 280 takes the place of GIS 410
4. ENT 201 takes the place of one Technical Elective
5. Removal of Free Elective
6. The remaining technical elective is 2-3 credits. While all the courses on the technical elective list are 3 credits, two credit aquatic/fisheries-focused -495 classes are offered that can also fill this requirement.

Implications for the Wildlife Concentration

1. ENV 100 and 101 take the place of NR 100
2. CH 220/222 or CH 221/222 are both acceptable for the organic chemistry requirement
3. GIS 280 takes the place of GIS 410
4. ENT 201 takes the place of one Wildlife Elective
5. Removal of Free Elective
6. GN 301 or GN 311 are acceptable for the Genetics requirement

Implications for the Conservation Biology Concentration

1. ENV 100 and 101 take the place of NR 100
2. CH 220/222 or CH 221/222 are both acceptable for the organic chemistry requirement
3. GIS 280 takes the place of GIS 410
4. ENT 201 takes the place of one Technical Elective
5. Removal of Free Elective
6. GN 301 or GN 311 are acceptable for the Genetics requirement

Consultation Statement:

Department	Contact Name	Statement
Entomology	Dr. John Dole, CALS Assoc. Dean Academic Programs	----- Forwarded message ----- From: John Dole < jmdole@ncsu.edu > Date: Thu, Sep 20, 2018 at 9:50 AM Subject: Re: Consult for FWCB curriculum revision To: Gary Blank < gblank@ncsu.edu > Gary, I got a quick response from the Department of Entomology and Plant Pathology. They are fine with the change and will increase the enrollment cap to accommodate the extra students. Thanks for checking with us. John

Proposed implementation date: Fall 2019

Impact on Students:

Students entering the new degree program will have a lower overall credit requirement for their degree. Removal of the free elective and replacing a technical/wildlife elective with a required course takes away some of the flexibility that previously allowed students to pursue minors. The six-credit summer course requirement makes the credit load in fall and spring semesters lighter, so students may still choose to take the extra credits that will allow them to earn a minor.

Current students who are on the 2014 degree audit will have the option to move to the revised degree audit.

Budget: No new resources are needed.

Current CIP: 030101

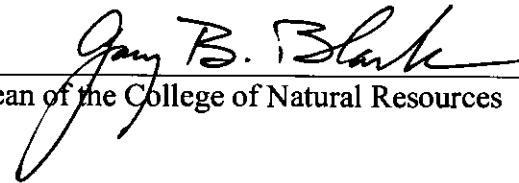
Fisheries, Wildlife, and Conservation Biology

Approval Signatures:



Chair of the CNR Academic Affairs Committee

9-28-18
Date



Dean of the College of Natural Resources

28 Sept 2018
Date

Chair, University Courses & Curricula Committee

Date

Dean, Undergraduate Academic Program

Date

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Fall 2019

Degree/Plan Title: B.S. in Fisheries, Wildlife, and Conservation Biology Concentration/Subplan Title: Fisheries

Plan SIS Code: 15FWSCIBS

Subplan SIS Code: 15FWSCIF

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR				
FALL SEMESTER	CREDITS	SPRING SEMESTER		CREDITS
ENV100/101 Environmental First Year	3	CH 101	Chemistry – A Molecular Science*	3
ENG 101 Academic Writing & Research*	4	CH 102	General Chemistry Lab*	1
MA 131 Elements of Calculus* ¹	3	BIO 183	Intro Bio Cell/Molecular*	4
BIO 181 Intro Bio Ecol/Div*	4	COM 110	Public Speaking <u>or</u>	3
PE 1** Fitness & Wellness*	1	COM 112	Interpersonal Communication	
			GEP Humanities Requirement*	3
			GEP Physical Ed/Healthy Living Requirement*	1
	Total: 15			Total: 15
SOPHOMORE YEAR				
FALL SEMESTER	CREDITS	SPRING SEMESTER		CREDITS
CH 220 & CH 222 or CH 221 & CH 222 Organic Chemistry²	4	Economics Elective ⁵		3
FW 221 Conservation of Natural Resources*	3 CP	BIO 360	Evolution, Behavior, and Ecology <u>or</u>	4 CP
Communications Elective ³	3	PB 360	Intro to Ecology	
FOR 172 Forest Systems Map and Mens	2	PY 131	Conceptual Physics* ⁴	4
		CH 201	Chemistry – A Quantitative Science	3
		CH 202	Quantitative Chemistry Lab	1
	Total: 12			Total: 15
SUMMER	CREDITS			
FW 311 Wildlife Inventory and Mgt	3	SUMMER CAMP COURSES MAY BE SUBSTITUTED BY A COMBINATION OF TWO APPROVED FWCB INTERNSHIP (FW 492) OR FWCB STUDY ABROAD EXPERIENCES		
FW 312 Fisheries Techniques and Mgt	1			
FW 313 Mountain Wildlife Ecol and Mgt	1			
FW 314 Coastal Fish Ecol and Mgt	1			
	Total: 6			
JUNIOR YEAR				
FALL SEMESTER	CREDITS	SPRING SEMESTER		CREDITS
GEP Humanities Requirement*	3	AEC 420	Intro to Fisheries Science	3 CP
FW 353 Wildlife Management	3 CP	FW 373	Vertebrate Natural History	3 CP
GN 301 Genetics in Human Affairs <u>or</u>	3-4	FW 411	Human Dimensions of Wildlife	3
GN 311 Principles of Genetics		GIS 280	Introduction to GIS	3
ST 311 Intro to Statistics*	3	ENT 201	Insects and People (IP GEP)	3
ENG 333 Comm for Science and Research	3 CP			
	Total:15-16			Total: 15
SENIOR YEAR				
FALL SEMESTER	CREDITS	SPRING SEMESTER		CREDITS
Quantitative Elective ⁷	3	AEC 441	Biology of Fish	3 CP
Technical Elective⁶	2-3	BIO Elective ¹⁰		3
Policy Elective ⁸	3	Physical Science Elective ¹¹		3
Aquatic Elective ⁹	3 CP	Technical Elective ⁶		3 CP
FW 415 Professional Development	1	GEP	Additional Breadth Requirement*	3
	Total:12-13			Total: 15
Minimum Credit Hours Required for Graduation*: 120				

Major/Program Footnotes:

- ¹ Students with appropriate math skills are encouraged to take the math sequence MA 141 & 241
- ² Students wishing to take a 2-course organic chemistry sequence should take CH 221/222 & CH 223/224
- ³ Select from ENG 214, ENG 215, ENG 216, COM 201, COM 211, COM 226, COM 301, COM 302
- ⁴ Students wishing to take a 2-course physics sequence should take PY 211 & PY 212
- ⁵ Select from ARE 201, EC 201, or EC 205
- ⁶ Select from FOR 252, FOR 304, FOR 420, FW 404, FW 453, MEA 200/210, MEA 220, MEA 250/251, MEA 549, PB 200, ZO 515, ZO 586/587
- ⁷ Select from MA 231, MA 241, CSC 200, ST 312
- ⁸ Select from NR 460, ARE 309, PS 320, or PS 336
- ⁹ Select from AEC 419, BIO 380, MEA 200, or MEA 220
- ¹⁰ Select from BIO 250, BIO 402, BIO 403, BIO 410, BIO 422, BIO (ENT) 425
- ¹¹ Select from PY 212, CH 201/202, CH 223, CH 323, MEA 100, MEA 130/135, MEA 200/210, MEA 220, MEA 250/251

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 131, ST 311**
- B. Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101 and CH 102, PY 131, BIO 181, BIO 183, PB 360 and PB 365 or BIO 260**
- C. Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None**
- D. Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **ARE 201 or EC 205, NR 460, ARE 309, PS 320, or PS 336**
- E. Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts or _____ Mathematical Sciences/Natural Sciences/Engineering
- G. Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **FW 221, ENT 201**
- H. Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements:

- I. U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **None**
- J. Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **FW 221**
- K. Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

**College of Natural Resources, NCSU
Forestry and Environmental Resources Department
Fisheries and Wildlife Sciences – Fisheries Concentration
Effective: 08/2014**

FRESHMAN YEAR					
FALL SEMESTER		CREDITS	SPRING SEMESTER		CREDITS
NR 100	Intro to Natural Resources	2	CH 101	Chemistry – A Molecular Science*	3
ENG 101	Academic Writing & Research*	4	CH 102	General Chemistry Lab*	1
MA 131	Elements of Calculus* ¹	3	BIO 183	Intro Bio Cell/Mol*	4
BIO 181	Intro Bio Ecol/Div*	4	COM 110	Public Speaking or	3
HESF 1**	Fitness & Wellness*	1	COM 112	Interpersonal Communication	
			GEP Humanities Requirement*		3
			GEP Health & Exercise Studies Course*		1
		<i>Total: 14</i>			<i>Total: 15</i>
SOPHOMORE YEAR					
FALL SEMESTER		CREDITS	SPRING SEMESTER		CREDITS
CH 220	Introductory Organic Chemistry ²	4	Economics Elective ⁵		3
FW 221	Conservation of Nat Resources*	3	BIO 260	Evolution, Behavior, and Ecology or	
	Communication Elective ³	3	PB 360/365	Intro to Ecology/Ecology Lab*	4
PY 131	Conceptual Physics* ⁴	4	Free Elective		3
FOR 172	Forest Systems Map and Mensur	2	CH 201	Chemistry – A Quantitative Science	3
			CH 202	Quantitative Chemistry Lab	1
		<i>Total: 16</i>			<i>Total: 14</i>
SUMMER					
FW 311	Wildlife Inventory and Mgt	3	SUMMER CAMP COURSES MAY BE		
FW 312	Fisheries Techniques and Mgt	1	SUBSTITUTED BY A COMBINATION OF TWO		
FW 313	Mountain Wildlife Ecol and Mgt	1	APPROVED FWCB INTERNSHIP (FW 492) OR		
FW 314	Coastal Fish Ecol and Mgt	1	FWCB STUDY ABROAD EXPERIENCES		
		<i>Total: 6</i>			
JUNIOR YEAR					
FALL SEMESTER		CREDITS	SPRING SEMESTER		CREDITS
GEP Humanities Requirement*		3	AEC 420	Intro to Fisheries Science	3
FW 353	Wildlife Management	3	FW 373	Vertebrate Natural History	3
GN 301	Genetics in Human Affairs or	3-4	FW 411	Human Dimensions of Wildlife	3
GN 311	Principles of Genetics		GIS 410	Intro to GIS	3
ST 311	Intro to Statistics*	3	Technical Elective ⁶		3
ENG 333	Comm for Science and Research	3			
		<i>Total: 15-16</i>			<i>Total: 15</i>
SENIOR YEAR					
FALL SEMESTER		CREDITS	SPRING SEMESTER		CREDITS
Quantitative Elective ⁷		3	AEC 441	Biology of Fish	3
GEP Interdisciplinary Perspectives Requirement*		2-3	BIO Elective ¹⁰		3
Policy Elective ⁸		3	Physical Science Elective ¹¹		3
Aquatic Elective ⁹		3-4	Technical Elective ⁶		3
FW 415	Professional Development	1	GEP Additional Breadth Requirement*		3
		<i>Total: 12-14</i>			<i>Total: 15</i>
Minimum Credit Hours Required for Graduation* ^{l,j,k} : 122-125					

Major/Program Footnotes:

- ¹ Students with appropriate math skills are encouraged to take the math sequence MA 141 & 241
² Students wishing to take a 2-course organic chemistry sequence should take CH 221/222 & CH 223/224
³ Select from ENG 214, ENG 215, ENG 216, COM 201, COM 211, COM 226, COM 301, COM 302
⁴ Students wishing to take a 2-course physics sequence should take PY 211 & PY 212
⁵ Select from ARE 201, EC 201, or EC 205
⁶ Select from FOR 252, FOR 304, FOR 420, FW 404, FW 453, MEA 200/210, MEA 220, MEA 250/251, MEA 549, PB 200, ZO 515, ZO 586/587
⁷ Select from MA 231, MA 241, CSC 200, ST 312
⁸ Select NR460, ARE 309, PS 320, or PS 336
⁹ Select from AEC 419, BIO 380, MEA 200, or MEA 220

¹⁰ Select from BIO 250, BIO 402, BIO 403, BIO 410, BIO 422, BIO (ENT) 425
¹¹ Select from PY 212, CH 223, MEA 100, MEA 130/135, MEA 200/210, MEA 220, MEA 250/251

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <http://oucc.ncsu.edu/gep-courses>.

*Courses/groupings in the above display with an asterisk may fulfill all or part of a GEP requirement. See categories below.

A. Mathematical Sciences (6 credit hours – one course with MA or ST prefix)

Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 131, ST 311**

B. Natural Sciences (7 credit hours – include one laboratory course or course with a lab)

Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101 and CH 102, PY 131, BIO 181, BIO 183, PB 360 and PB 365 or BIO 260**

C. Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None**

D. Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **ARE 201 or EC 205, NR 460**

E. Physical Education/Healthy Living (2 credit hours – at least one 100-level Fitness and Wellness Course)

Choose from the University approved GEP Physical Education/Healthy Living course list.

F. Additional Breadth - (3 credit hours to be selected from the following checked University approved GEP course lists)

Humanities/Social Sciences/Visual and Performing Arts

G. Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **FW 221**

H. Introduction to Writing (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements:

I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **None**

J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **None**

K. Foreign Language proficiency - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS**Format B**

<u>Degree/Plan Title:</u> Fisheries, Wildlife, and Conservation Biology	<u>Plan SIS Code:</u> 15FWSCIBS
<u>Concentration/Subplan Title:</u> Fisheries	<u>Subplan SIS Code:</u> 15FWSCIF
<u>Indicate requirements status:</u> Current: Proposed: X	<u>Proposed Effective Semester:</u> Fall 2019
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
<u>Mathematical Sciences (6 hours)</u> MA 131 ST 311 <u>Natural Sciences</u> BIO 181 BIO 183 CH 101, CH 102 FW 221 (CP) PY 131 <u>Other Required Courses</u> ENT 201 ENV 100, ENV 101, COM 110 or COM 112, CH 220/222 or CH 221/222, CH 201/202, FOR 172, GN 301 or GN 311, FW 353 (CP), FW 373 (CP), FW 411 (CP), FW 415, AEC 420 (CP), AEC 441, ENG 333 (CP), GIS 280	3 3 4 4 4 3 4 44-45	Mathematics (3 hours) Mathematics (3 hours) Natural Sciences (4 hours) Natural Sciences (4 hours) Interdisciplinary Perspectives (3 hours) and Global Knowledge Interdisciplinary Perspectives (3 hours)
<u>Concentration Courses/Groups/Electives:</u> Physical Science Elective - Select from CH 201/202, CH 223, CH 323, MEA 100/100L, MEA 130/135, MEA 200/210, MEA 220, MEA 250/251, PY 212 Economics Elective – Choose from ARE 201, EC 201, or EC 205 Ecology Elective – BIO 360 or PB 360/365 (CP) Communications Elective – Select from ENG 214, ENG 215, ENG 216, COM 201, COM 211, COM 226, COM 301, COM 302 Quantitative Elective - Select from MA 231, MA 241, CSC 200, ST 312	3 3 4 3 3	Social Sciences (3 hours)

Technical Elective - Select from FOR 252, FOR 304, FOR 420, FW 404, FW 453, MEA 200/210, MEA 220, MEA 250/251, MEA 549, PB 200, ZO 515, ZO 586/587 (CP)	5-6	Social Sciences (3 hours)
Aquatic Elective – Select one from AEC 419, BIO 380, MEA 200, or MEA 220 (CP)	3-4	
Summer Camp (FW 311, FW 312, FW 313, FW 314) OR Summer Internship and/or study abroad	6	
Policy Elective – NR 460, ARE 309, PS 320, PS 336	3	
BIO Elective - Select from BIO 250, BIO 402, BIO 403, BIO 410, BIO 422, BIO (ENT) 425	3	
Free Electives:	0	
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	105-8 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s):		
Other:		
Total credit hours under College Requirements:	0 Hours	

<u>NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</u>		At least one of the following must be listed:
<i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i>		1 Choose course(s) from the University Approved GEP course list for this category.
<i>Specific courses should not be listed in any of the fields below other than ENG 101.</i>		2 Minimum requirements are satisfied by Major/College course requirements.
		3 Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
		4 Co-requisite is satisfied by a Major/College course requirement.
		5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.
		6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	<i>(Choose statement 1, 2 or 3)</i> Minimum requirements are satisfied by Major/College course requirements.
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	<i>(Choose statement 1, 2 or 3)</i> Minimum requirements are satisfied by Major/College course requirements.
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	<i>(Choose statement 1, 2 or 3)</i> Choose courses from the University Approved GEP course list for this category.
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	<i>(Choose statement 1, 2 or 3)</i> Minimum requirements are satisfied by Major/College course requirements.
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.</i>	3	<i>(Choose statement 5 or 6)</i> Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.

Interdisciplinary Perspectives <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	(5 credits)	X	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course requirements. FW 221 and ENT 201.
Health and Exercise Studies (Including one <i>Fitness and Wellness</i> course)	(2 credits)	2	Choose course(s) from the University Approved GEP course list for this category.
Total credit hours needed to complete GEP that are <u>not</u> satisfied as part of the Major/College requirements.		15 hours	
GEP Co-Requisites:			Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.
U.S. Diversity co-requisite	(USD)	n/a	7 (Choose statement 1 or 4) Choose course(s) from the University Approved GEP course list for this category.
Global Knowledge co-requisite	(GK)	n/a	8 (Choose statement 1 or 4) Choose course(s) from the University Approved GEP course list for this category.
Foreign Language Proficiency		n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:			Place an X in the credit hour box to indicate below that the requirement is " Satisfied by College/Program Requirements "
Communication in the Major (Advanced Communication)		X	Satisfied by College/Program Requirements
Technology Fluency		X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.		120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Fall 2019

Degree/Plan Title: B.S. in Fisheries and Wildlife Sciences

Concentration/Subplan Title: Wildlife

Plan SIS Code: 15FWSCIBS

Subplan SIS Code: 15FWSCIW

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR				
FALL SEMESTER	CREDITS	SPRING SEMESTER		CREDITS
ENV100/101 Environmental First Year	3	CH 101	Chemistry – A Molecular Science*	3
ENG 101 Academic Writing & Research*	4	CH 102	General Chemistry Lab*	1
MA 131 Elements of Calculus* ¹	3	BIO 183	Intro Bio Cell/Molecular*	4
BIO 181 Intro Bio Ecol/Div*	4	COM 110	Public Speaking or	3
PE 1** Fitness & Wellness*	1	COM 112	Interpersonal Communication	
			GEP Humanities Requirement*	3
			GEP Physical Ed/Healthy Living Requirement*	1
	<i>Total: 15</i>			<i>Total: 15</i>
SOPHOMORE YEAR				
FALL SEMESTER	CREDITS	SPRING SEMESTER		CREDITS
PB 200 Plant Life	4	Economics Elective ⁴		3
FW 221 Conservation of Natural Resources*	3 CP	BIO 360 Evolution, Behavior, and Ecology or		
Communications Elective ²	3	PB 360/365 Intro to Ecology/Ecology Lab		4 CP
PY 131 Conceptual Physics* ³	4	GEP Additional Breadth Requirement*		
FOR 172 Forest Systems Map and Mens	2	Quantitative Elective ⁵		3
				3
	<i>Total: 16</i>			<i>Total: 13</i>
SUMMER	CREDITS			
FW 311 Wildlife Inventory and Mgt	3	SUMMER CAMP COURSES MAY BE SUBSTITUTED		
FW 312 Fisheries Techniques and Mgt	1	BY A COMBINATION OF TWO APPROVED FWCB		
FW 313 Mountain Wildlife Ecol and Mgt	1	INTERNSHIP (FW 492) OR FWCB STUDY ABROAD		
FW 314 Coastal Fish Ecol and Mgt	1			
	<i>Total: 6</i>			
JUNIOR YEAR				
FALL SEMESTER	CREDITS	SPRING SEMESTER		CREDITS
FOR 339 Dendrology	4	GEP	Humanities Requirement*	3
FW 353 Wildlife Management	3 CP	CH 220 & CH 222 or CH 221 & CH 222 Organic Chemistry⁶		4
GN 301 or GN 311 Genetics	3-4	FW 373	Vertebrate Natural History	3 CP
ST 311 Intro to Statistics*	3	FW 411	Human Dimensions of Wildlife	3 CP
		ENG 333	Comm for Science and Research	3
	<i>Total:13</i>			<i>Total: 16</i>
SENIOR YEAR				
FALL SEMESTER	CREDITS	SPRING SEMESTER		CREDITS
ENT 201 Insects and People (GEP IP)	3	FW 453	Principles of Wildlife Science	4 CP
GIS 280 Introduction to GIS	3		Wildlife Elective ⁷	3
Policy Elective ⁸	3	AEC 420	Intro to Fisheries Science	3
FW 404 Forest Wildlife Management	3 CP		Physical Science Elective ⁹	3
FW 415 Professional Development	1			
	<i>Total: 13</i>			<i>Total: 13</i>
Minimum Credit Hours Required for Graduation*: 120				

Major/Program Footnotes:

- ¹ Students with appropriate math skills are encouraged to take the math sequence MA 141 & 241
- ² Select from ENG 214, ENG 215, ENG 216, COM 201, COM 211, COM 226, COM 301, COM 302
- ³ Students wishing to take a 2-course physics sequence should take PY 211 & PY 212
- ⁴ Select from ARE 201, EC 201, or EC 205
- ⁵ Select from MA 231, MA 241, CSC 200, ST 312
- ⁶ Students wishing to take a 2-course organic chemistry sequence should take CH 221/222 & CH 223/224
- ⁷ Select from FW 333, FW 403, FW 405, FW 444, FW 460, FW 465, ZO 501, ZO 542, BIO 250, BIO 410, ENT 201, ENT 402, ENT 425, FOR 304, SSC 200, NR 300
- ⁸ Select from NR 460, ARE 309, PS 320, or PS 336
- ⁹ Select from CH 201/202, CH 223, CH 323, MEA 100/100L, MEA 130/135, MEA 200, MEA 210, MEA 220, MEA 250/251, PY 212

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 131, ST 311**
- B. Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101 and CH 102, PY 131, BIO 181, BIO 183, PB 360 and PB 365 or BIO 260**
- C. Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None**
- D. Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **ARE 201 or EC 205, NR 460, ARE 309, PS 320, or PS 336**
- E. Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts or Mathematical Sciences/Natural Sciences/Engineering
- G. Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **FW 221, ENT 201**
- H. Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements:

- J. U.S. Diversity** (USD)
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **None**
- K. Global Knowledge** (GK)
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **FW 221**
- L. Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

**College of Natural Resources, NCSU
Forestry and Environmental Resources Department
Fisheries and Wildlife Sciences – Wildlife Concentration
Effective: 08/2014**

FRESHMAN YEAR					
FALL SEMESTER		CREDITS	SPRING SEMESTER		CREDITS
NR 100	Intro to Natural Resources	2	CH 101	Chemistry – A Molecular Science*	3
ENG 101	Academic Writing & Research*	4	CH 102	General Chemistry Lab*	1
MA 131	Elements of Calculus* ¹	3	BIO 183	Intro Bio: Cell/Mol Biol*	4
BIO 181	Intro Bio Ecol/Div*	4	COM 110	Public Speaking or	3
HESF 1**	Fitness & Wellness*	1	COM 112	Interpersonal Communication	
			GEP Humanities Requirement*		3
			GEP Health & Exercise Studies Course*		1
		<i>Total:14</i>			<i>Total:15</i>
SOPHOMORE YEAR					
FALL SEMESTER		CREDITS	SPRING SEMESTER		CREDITS
PB 200	Plant Life	4	Economics Elective* ⁴		3
FW 221	Conservation of Nat Resources*	3	BIO 260	Evolution, Behavior, and Ecology or	
	Communications Elective ²	3	PB 360/365	Intro to Ecology/Ecology Lab*	4
PY 131	Conceptual Physics* ³	4	Free Elective		3
FOR 172	Forest Systems Map and Mens	2	GEP Additional Breadth Requirement*		3
			Quantitative Elective ⁵		3
		<i>Total:16</i>			<i>Total:16</i>
SUMMER		CREDITS			
FW 311	Piedmont Wildlife Ecology and Mgt	3	SUMMER CAMP COURSES MAY BE		
FW 312	Fisheries Techniques and Mgt	1	SUBSTITUTED BY A COMBINATION OF		
FW 313	Mountain Wildlife Ecol and Mgt	1	TWO APPROVED FWCB INTERNSHIP (FW		
FW 314	Coastal Fish Ecol and Mgt	1	492) OR FWCB STUDY ABROAD		
		<i>Total:6</i>			
JUNIOR YEAR					
FALL SEMESTER		CREDITS	SPRING SEMESTER		CREDITS
FOR 339	Dendrology	4	GEP Humanities Requirement*		3
FW 353	Wildlife Management	3	CH 220	Introductory Organic Chemistry ⁶	4
GN 301	Genetics in Human Affairs	3	FW 373	Vertebrate Natural History	3
ST 311	Intro to Statistics*	3	FW 411	Human Dimensions of Wildlife	3
GEP Interdisciplinary Perspectives Requirement*		2-3	ENG 333	Comm for Science and Research	3
		<i>Total:15-16</i>			<i>Total:16</i>
SENIOR YEAR					
FALL SEMESTER		CREDITS	SPRING SEMESTER		CREDITS
Wildlife Elective ⁷		3	FW 453	Principles of Wildlife Science	4
GIS 410	Introduction to GIS	3	Wildlife Elective ⁷		3
Policy Elective ⁸		3	AEC 420	Intro to Fisheries Science	3
FW 404	Forest Wildlife Management	3	Physical Science Elective ⁹		3
FW 415	Professional Development	1			
		<i>Total:13</i>			<i>Total:13</i>
Minimum Credit Hours Required for Graduation*: 125					

Major/Program Footnotes:

¹ Students with appropriate math skills are encouraged to take the math sequence MA 141 & 241

² Select from ENG 214, ENG 215, ENG 216, COM 201, COM 211, COM 226, COM 301, COM 302

³ Students wishing to take a 2-course physics sequence should take PY 211 & PY 212

⁴ Select from ARE 201, EC 201, or EC 205

⁵ Select from MA 231, MA 241, CSC 200

⁶ Students wishing to take a 2-course organic chemistry sequence should take CH 221/222 & CH 223/224

⁷ Select from FW 333, FW 403, FW 405, FW 444, FW 460, FW 465, ZO 501, ZO 542, BIO 250, BIO 410, ENT 201, ENT 402, ENT 425, FOR 304, SSC 200, NR 300

⁸ Select from NR 460, ARE 309, PS 320, or PS 336

⁹ Select from CH 201/202, CH 223, CH 323, MEA 100/100L, MEA 130/135, MEA 200, MEA 210, MEA 220, MEA 250/251, PY 212

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <http://oucc.ncsu.edu/gep-courses>.

*Courses/groupings in the above display with an asterisk may fulfill all or part of a GEP requirement. See categories below.

A. Mathematical Sciences (6 credit hours – one course with MA or ST prefix)

Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 131, ST 311**

B. Natural Sciences (7 credit hours – include one laboratory course or course with a lab)

Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101 and CH 102, PY 131, BIO 181, BIO 183, PB 360 and PB 365 or BIO 260**

C. Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None**

D. Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **ARE 201 or EC 205, NR 460**

E. Physical Education/Healthy Living (2 credit hours – at least one 100-level Fitness and Wellness Course)

Choose from the University approved GEP Physical Education/Healthy Living course list.

F. Additional Breadth - (3 credit hours to be selected from the following checked University approved GEP course lists)

Humanities/Social Sciences/Visual and Performing Arts

G. Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **FW 221**

H. Introduction to Writing (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements:

I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **None**

J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **None**

K. Foreign Language proficiency - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS**Format B**

<u>Degree/Plan Title:</u> Fisheries, Wildlife, and Conservation Biology	<u>Plan SIS Code:</u> 15FWSCIBS
<u>Concentration/Subplan Title:</u> Wildlife	<u>Subplan SIS Code:</u> 15FWSCIW
<u>Indicate requirements status:</u> Current: Proposed: X	<u>Proposed Effective Semester:</u> Fall 2019
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
<u>Mathematical Sciences (6 hours)</u> MA 131 ST 311 <u>Natural Sciences</u> BIO 181 BIO 183 CH 101, CH 102 FW 221 (CP) PY 131 <u>Other Required Courses</u> ENT 201 ENV 100, ENV 101, COM 110 or COM 112, CH 221/222 or CH 220/222, PB 200, FOR 172, FOR 339, GN 301 or GN 311, FW 353, FW 373 (CP), FW 404 (CP), FW 411 (CP), FW 415, AEC 420, FW 453 (CP), ENG 333, GIS 280	3 3 4 4 4 3 4 52-53	Mathematics (3 hours) Mathematics (3 hours) Natural Sciences (4 hours) Natural Sciences (4 hours) Interdisciplinary Perspectives (3 hours) and Global Knowledge Interdisciplinary Perspectives (3 hours)
<u>Concentration Courses/Groups/Electives:</u> Physical Science Elective - Select from CH 201/202, CH 223, CH 323, MEA 100/100L, MEA 130/135, MEA 200, MEA 210, MEA 220, MEA 250/251, PY 212 Economics Elective – Choose from ARE 201, EC 201, or EC 205 Ecology Elective – BIO 260 or PB 360/365 (CP) Communications Elective – Select from ENG 214, ENG 215, ENG 216, COM 201, COM 211, COM 226, COM 301, COM 302 Quantitative Elective - Select from MA 231, MA 241, CSC 200, ST 312	3 3 4 3 3	Social Sciences (3 hours)

Wildlife Elective - Select ONE from ENT 402, ENT 425, FOR 304, SSC 200, NR 300, FW 333, FW 403, FW 405, FW 444, FW 460, FW 465, ZO 501, ZO 542, BIO 250, BIO 410 Summer Camp (FW 311, FW 312, FW 313, FW 314) OR Summer Internship and/or study abroad Policy Elective – NR 460, ARE 309, PS 320, PS 336	3 6 3	Social Sciences (3 hours)
Free Electives:	0	
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	105-106 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s):		
Other:		
Total credit hours under College Requirements:	0 Hours	

<u>NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</u>		<u>At least one of the following must be listed:</u>
<p><i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i></p> <p>Specific courses should not be listed in any of the fields below other than ENG 101.</p>		<ol style="list-style-type: none"> 1 Choose course(s) from the University Approved GEP course list for this category. 2 Minimum requirements are satisfied by Major/College course requirements. 3 Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category. 4 Co-requisite is satisfied by a Major/College course requirement. 5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts. 6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) <i>Choose courses from the University Approved GEP course list for this category.</i>
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major/College course requirements.</i>
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.</i>	3	(Choose statement 5 or 6) <i>Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.</i>
Interdisciplinary Perspectives (5 credits) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course

		requirements. FW 221 and ENT 201
Health and Exercise Studies (Including one <i>Fitness and Wellness</i> course)	(2 credits) 2	Choose course(s) from the University Approved GEP course list for this category.
Total credit hours needed to complete GEP that are <u>not</u> satisfied as part of the Major/College requirements.	15 hours	
GEP Co-Requisites:		Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.
U.S. Diversity co-requisite (USD)	n/a	7 <i>(Choose statement 1 or 4)</i> Choose course(s) from the University Approved GEP course list for this category.
Global Knowledge co-requisite (GK)	n/a	8 <i>(Choose statement 1 or 4)</i> Choose course(s) from the University Approved GEP course list for this category.
Foreign Language Proficiency	n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:		Place an X in the credit hour box to indicate below that the requirement is " Satisfied by College/Program Requirements "
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements
Technology Fluency	X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	120-121 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: Fall 2019

Degree/Plan Title: B.S. in Fisheries, Wildlife, and Conservation Biology Concentration/Subplan Title: Conservation Biology

Plan SIS Code: 15FWSCIBS

Subplan SIS Code: 15FWSCICB

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR				
FALL SEMESTER	CREDITS	SPRING SEMESTER		CREDITS
ENV 100/101 Environmental First Year	3	CH 101	Chemistry – A Molecular Science*	3
ENG 101 Academic Writing & Research*	4	CH 102	General Chemistry Lab*	1
MA 131 Elements of Calculus*	3	BIO 183	Intro Bio Cell/Molecular*	4
BIO 181 Intro Bio Ecol/Div*	4	COM 110	Public Speaking <u>or</u>	3
PE 1** Fitness & Wellness*	1	COM 112	Interpersonal Communication	
			GEP Humanities Requirement*	3
			GEP Physical Ed/Healthy Living Requirement*	1
	<i>Total: 15</i>			<i>Total: 15</i>
SOPHOMORE YEAR				
FALL SEMESTER	CREDITS	SPRING SEMESTER		CREDITS
Plant Elective ¹	3	Economics Elective ³		3
FW 221 Conservation of Natural Resources*	3 CP	Ecology Elective ⁴		4 CP
PY 131 Conceptual Physics*	4	GEP Additional Breadth Requirement*		3
FOR 172 Forest Systems Map and Mens	2	Quantitative Elective ⁵		3
Physical Science Elective ²	3			
	<i>Total: 15</i>			<i>Total:13</i>
SUMMER				
6 credit Experience Elective – can be met by summer camp (courses listed in adjacent block), a combination of internship and/or study abroad, or other courses that provide hands-on conservation biology experience		FW 311	Wildlife Inventory and Mgt	3
		FW 312	Fisheries Techniques and Mgt	1
		FW 313	Mountain Wildlife Ecol and Mgt	1
		FW 314	Coastal Fish Ecol and Mgt	1
				<i>Total: 6</i>
JUNIOR YEAR				
FALL SEMESTER	CREDITS	SPRING SEMESTER		CREDITS
GIS 280 Intro to GIS	3	GEP	Humanities Requirement*	3
FW 333 Conservation Biology in Practice	3 CP	CH 221 & 222 <u>or</u> CH 220 & 222 Organic Chemistry & Lab		4
ST 311 Intro to Statistics*	3	FW 373	Vertebrate Natural History	3 CP
FW 353 Wildlife Management	3	FW 411	Human Dimensions of Wildlife	3 CP
GN 301 <u>or</u> GN 311 Genetics Elective	3	ENG 333	Comm for Science and Research	3
	<i>Total:15</i>			<i>Total: 16</i>
SENIOR YEAR				
FALL SEMESTER	CREDITS	SPRING SEMESTER		CREDITS
Technical Elective ⁶	3	FW 453	Principles of Wildlife Science	3-4 CP
Fish and Wildlife Elective ⁷	3		OR AEC 420 Fisheries Science	
Policy Elective ⁸	3		Conservation Biology Elective ⁹	3
ENT 201 Insects and People (GEP IP)	3		Technical Elective ⁶	6
FW 415 Professional Development	1			
	<i>Total:13</i>			<i>Total:12-13</i>
Minimum Credit Hours Required for Graduation*: 120				

Major/Program Footnotes:¹ Select from FOR 339, PB 220, PB 250, PB 403, PB 405² Select from CH 201/202, CH 223, CH 323, MEA 100, MEA 130, MEA 200, MEA 210, MEA 220, MEA 250, PY 212³ Select from ARE 201, EC 201, or EC 205⁴ Select from PB 360, BIO 360, or FOR 260⁵ Select from NR 300, MA 231, MA 241, CSC 200, ST 312⁶ Select from BIO 419, FW 403, FW 404, FW 465, ENT 201, ENT 402, ENT 425, FOR 252, FOR 304, SSC 200, ET 252⁷ Select from BIO 410, AEC (BIO) 420, AEC (BIO) 441, FW 453, ZO 501, ZO 542, ZO 5448⁸ Select from NR 460, ARE 309, PS 320, or PS 336⁹ Select from BIO 561, FW 403, FW 460, NR 406***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 131, ST 311**
- B. Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101 and CH 102, PY 131, BIO 181, BIO 183, PB 360 and PB 365 or BIO 260**
- C. Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None**
- D. Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **ARE 201 or EC 205, NR 460, ARE 309, PS 320, or PS 336**
- E. Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts or _____ Mathematical Sciences/Natural Sciences/Engineering
- G. Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **FW 221, ENT 201**
- H. Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements:

- I. U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **None**
- J. Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **FW 221**
- K. Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

College of Natural Resources, NCSU
Forestry and Environmental Resources Department
Fisheries, Wildlife, and Conservation Biology Sciences – Conservation Biology Concentration
Effective: 08/2014

FRESHMAN YEAR					
FALL SEMESTER		CREDITS	SPRING SEMESTER		CREDITS
NR 100	Intro to Natural Resources	2	CH 101	Chemistry – A Molecular Science*	3
ENG 101	Academic Writing & Research*	4	CH 102	General Chemistry Lab*	1
MA 131	Elements of Calculus* ¹	3	BIO 183	Intro Bio Cell/Mol*	4
BIO 181	Intro Bio Ecol/Div*	4	COM 110	Public Speaking or	3
HES_***	Health & Exercise Studies Course*	1	COM 112	Interpersonal Communication	
			GEP Humanities Requirement*		3
			HES_***	Health & Exercise Studies Course*	1
		<i>Total:14</i>			<i>Total:15</i>
SOPHOMORE YEAR					
FALL SEMESTER		CREDITS	SPRING SEMESTER		CREDITS
Plant Elective ¹		3	Economics Elective * ³		3
FW 221	Conservation of Nat Resources*	3	Ecology Elective ⁴		3
PY 131	Conceptual Physics* ⁴	4	Free Elective		3
FOR 172	Forest Systems Map & Mensuration	2	GEP Additional Breath Requirement*		3
Physical Science Elective ²		3	Quantitative Elective ⁵		3
		<i>Total:15</i>			<i>Total:15</i>
SUMMER					
6 credit Experience Elective ⁷ – can be met by summer camp (courses listed in adjacent block), a combination of internship and/or study abroad, or other courses that provide hands-on conservation biology experience.			FW 311	Piedmont Wildlife Ecology and Mgt	3
			FW 312	Fisheries Techniques and Mgt	1
			FW 313	Mountain Wildlife Ecol and Mgt	1
			FW 314	Coastal Fish Ecol and Mgt	1
					<i>Total:6</i>
JUNIOR YEAR					
FALL SEMESTER		CREDITS	SPRING SEMESTER		CREDITS
GIS 410	Intro to GIS	3	GEP Humanities Requirement*		3
FW 333	Conservation Biol in Practice	3	CH 221/222	Organic Chem & Lab	4
ST 311	Intro to Statistics*	3	FW 373	Vertebrate Natural History	3
FW 353	Wildlife Management	3	FW 411	Human Dimensions of Wildlife	3
GN 301	Genetics in Human Affairs	3	ENG 333	Commun Sci & Res	3
		<i>Total:15</i>			<i>Total:16</i>
SENIOR YEAR					
FALL SEMESTER		CREDITS	SPRING SEMESTER		CREDITS
Technical Elective ⁶		6	FW 453	Princ of Wildlife Science or	3-4
Fish & Wildlife Elective ⁸		3	AEC 420	Fisheries Science	
Policy Elective ⁹		3	Conservation Biology Elective ¹⁰		3
GEP Interdisciplinary Perspectives Requirement*		2-3	Technical Elective ⁶		6
FW 415	Professional Development	1			
		<i>Total:15-16</i>			<i>Total:12-13</i>

Minimum Credit Hours Required for Graduation*^{L,J,K}: 123-126

Major/Program Footnotes:

¹ Select from FOR 339, PB 220, PB 250, PB 403, PB 405

² Select from CH 201/202, CH 223, MEA 100, MEA 130, MEA 200, MEA 210, MEA/BIO 220, MEA 250, MEA 323, PY 212

³ Select from ARE 201, EC 201 or EC 205

⁴ Select from PB/BIO 360 or FOR 260

⁵ Select from NR 300, MA 231, MA 241, CSC 200, ST 312

⁶ Select from AEC 419, FW 403, FW 404, FW 465, ENT 201, ENT 402, ENT 425, FOR 252, FOR 304, SSC 200, ET 252

⁷ Internships or study abroad experiences can be completed at any point during the curriculum.

⁸ Select from BIO 410, AEC (BIO) 420, AEC (BIO) 441, FW 453, ZO 501, ZO 542, ZO 544

⁹ Select from NR 460, ARE 309, PS 320, PS 336

¹⁰ Select from BIO 561, FW 403, FW 460, NR 406

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <http://oucc.ncsu.edu/gep-courses>.

*Courses/groupings in the above display with an asterisk may fulfill all or part of a GEP requirement. See categories below.

A. Mathematical Sciences (6 credit hours – one course with MA or ST prefix)

Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 131, ST 311**

B. Natural Sciences (7 credit hours – include one laboratory course or course with a lab)

Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101/102, PY 131, BIO 181, BIO 183, FW 221**

C. Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None**

D. Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **ARE 201 or EC 201, 205, Policy Elective (footnote 9)**

E. Physical Education/Healthy Living (2 credit hours – at least one 100-level Fitness and Wellness Course)

Choose from the University approved GEP Physical Education/Healthy Living course list.

F. Additional Breadth - (3 credit hours to be selected from the following checked University approved GEP course lists)

X Humanities/Social Sciences/Visual and Performing Arts

G. Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **FW 221**

H. Introduction to Writing (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements:

I. U.S. Diversity (USD)

Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **None**

J. Global Knowledge (GK)

Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **None**

K. Foreign Language proficiency - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS**Format B**

<u>Degree/Plan Title:</u> Fisheries, Wildlife, and Conservation Biology	<u>Plan SIS Code:</u> 15FWSCIBS
<u>Concentration/Subplan Title:</u> Conservation Biology	<u>Subplan SIS Code:</u> 15FWSCICB
<u>Indicate requirements status:</u> Current: Proposed: X	<u>Proposed Effective Semester:</u> Fall 2019
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:		
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
<u>Mathematical Sciences (6 hours)</u> MA 131 ST 311 <u>Natural Sciences</u> BIO 181 BIO 183 CH 101, CH 102 FW 221 (CP) PY 131 <u>Other Required Courses</u> ENT 201 ENV 100, ENV 101, COM 110 or COM 112, CH 221/222 or CH 220/222, FOR 172, GN 301 or GN 311, FW 333 (CP), FW 353, FW 373 (CP), FW 411 (CP), FW 415, FW 453 or AEC 420 (CP), ENG 333, GIS 280	3 3 4 4 4 3 4 40-42	Mathematics (3 hours) Mathematics (3 hours) Natural Sciences (4 hours) Natural Sciences (4 hours) Interdisciplinary Perspectives (3 hours) and Global Knowledge Interdisciplinary Perspectives (3 hours)
<u>Concentration Courses/Groups/Electives:</u> Physical Science Elective - Select from CH 201/202, CH 223, CH 323, MEA 100/100L, MEA 130/135, MEA 200, MEA 210, MEA 220, MEA 250/251, PY 212 Economics Elective – Select from EC 201, EC 205, ARE 201 Ecology Elective – BIO 260, PB 360/365, or FOR 260 (CP) Plant Elective - Select from FOR 339, PB 220, PB 250, PB 403, PB 405 Quantitative Elective - Select from MA 231, MA 241, CSC 200, ST 312 Technical Elective - Select THREE from BIO 419, FW 403, FW 404,	3 3 4 3 3 9	Social Sciences (3 hours)

FW 465, ENT 402, ENT 425, FOR 252, FOR 304, SSC 200, ET 252 Summer Camp (FW 311, FW 312, FW 313, FW 314) OR Summer Internship and/or study abroad	6	Social Sciences (3 hours)
Policy Elective – Select from NR 460, ARE 309, PS 320, PS 336	3	
Fish and Wildlife Elective – Select from BIO 410, AEC (BIO) 420, AEC (BIO) 441, FW 453, ZO 501, ZO 542, ZO 5448	3	
Conservation Biology Elective - Select from BIO 561, FW 403, FW 460, NR 406	3	
Free Electives:	0	
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	105 hours	
COLLEGE REQUIREMENTS:		
Orientation Course(s):		
Other:		
Total credit hours under College Requirements:	0 Hours	

NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS

Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.

Specific courses should not be listed in any of the fields below other than ENG 101.

At least one of the following must be listed:

- 1 Choose course(s) from the University Approved GEP course list for this category.
- 2 Minimum requirements are satisfied by Major/College course requirements.
- 3 Major/College course requirement satisfies **X** credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category.
- 4 Co-requisite is satisfied by a Major/College course requirement.
- 5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.
- 6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.

General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	X	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course requirements.
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	X	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course requirements.
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	6	(Choose statement 1, 2 or 3) Choose courses from the University Approved GEP course list for this category.
Social Sciences (6 credits) (Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.	X	(Choose statement 1, 2 or 3) Minimum requirements are satisfied by Major/College course requirements.
Additional Breadth (3 credits) (Choose approach that is different from the approach of the Major) Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.	3	(Choose statement 5 or 6) Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.
Interdisciplinary Perspectives (5 credits) Course(s) in the Major may double-count to satisfy this requirement and also	X	Minimum requirements are satisfied by Major/College course

satisfy either the Global Knowledge or U.S. Diversity co-requisites.			requirements. FW 221 and ENT 201
Health and Exercise Studies (Including one <i>Fitness and Wellness</i> course)	(2 credits)	2	Choose course(s) from the University Approved GEP course list for this category.
Total credit hours needed to complete GEP that are <u>not</u> satisfied as part of the Major/College requirements.		15 hours	
GEP Co-Requisites:			Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.
U.S. Diversity co-requisite	(USD)	n/a	7 <small>(Choose statement 1 or 4)</small> Choose course(s) from the University Approved GEP course list for this category.
Global Knowledge co-requisite	(GK)	n/a	8 <small>(Choose statement 1 or 4)</small> Choose course(s) from the University Approved GEP course list for this category.
Foreign Language Proficiency		n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:			Place an X in the credit hour box to indicate below that the requirement is " Satisfied by College/Program Requirements "
Communication in the Major (Advanced Communication)		X	Satisfied by College/Program Requirements
Technology Fluency		X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.		120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.

NC STATE UNIVERSITY

College of Natural Resources
Campus Box 8005
Raleigh, NC 27695-8005
919.515.5807
919.515.6302 (fax)

Paper Science & Engineering 919.515.2888
Sustainable Materials & Technology 919.515.3181
WP Extension 919.515.5637

To: University Courses and Curricula Committee
From: Dr. Marko Hakovirta, Professor and Department Head, Forest Biomaterials
Date: September 24, 2018
Subject: Request to Revise the B.S. in Sustainable Materials and Technology Curriculum

By agreement among the faculty in the Sustainable Materials and Technology program and the Department Head, the Department of Forest Biomaterials requests approval for the revision of the B.S. in Sustainable Materials and Technology (SMT) curriculum. The proposed revision is in response to the UNC Board of Governors' recently amended policy requiring that four-year baccalaureate degree programs in constituent institutions have no more than 120 semester credit hours. The current plan title is Sustainable Materials & Technology – BS, with a SIS code of 15SMTBS, a term date of Fall '18 and a CIP code of 03.0509.

The revisions being proposed are as follows:

1. Eliminate 7 credit hours by removing SMT 201 (Sustainable Materials for Green Housing, 2 credit hours), SMT 232 (Recycling to Create a Sustainable Environment, 2 credit hours) and SMT 310 (Introduction to Industrial Ecology, 3 credit hours) from the curriculum.
Justification: All 3 courses will continue to be offered as GEP-Interdisciplinary Perspectives classes and SMT students may choose to use these classes to meet the university's GEP-IP requirement. SMT students may also use the classes to meet the curriculum's 18 credit hours of Advised Electives.
2. Eliminate 1 credit hour by removing ET 203 (Pollution Prevention) from the curriculum.
Justification: SMT 320 (Industrial Chemical Pollutants) will address the learning outcomes lost from the elimination of ET 203.
3. Eliminate 3 credit hours by removing the communication elective (COM XXX) from the curriculum.
Justification: Communication learning outcomes will continue to be integrated and assessed across the curriculum.
4. Add 3 credit hours by increasing the Advised Electives total credit hours from 15 to 18.
Justification: The purpose of the advised electives is to allow SMT students to expand their sustainability portfolio. Students may use the courses listed in item 1 above to partially meet the credit requirements.

These changes will result in a decrease in the Minimum Credit Hours Required for Graduation from 128 to 120.


The revision to the SMT curriculum should not impact any other department or undergraduate program on campus. Consultation with other departments is not required.

The curriculum change will not impact students currently enrolled in the SMT program. The revised curriculum will be offered to current students who are on the 2018 degree audit, and they will be free to enroll in the revised program if it is more aligned with their interests.

Ideally the revised curriculum will be in place for students in the Fall of 2019.

North Carolina State University

This request has been reviewed and approved by the appropriate campus committees and authorities.

Endorsed By:  9/27/2018
Head, Department/Program Date

Recommended By:  9-27-2018
Chair, College Curriculum Committee Date

Endorsed By:  28 Sept 2018
College Dean Date

Recommended By: _____
Vice Provost, DELTA (if DE degree/certificate) Date

Recommended By: _____
Chair, University Courses & Curricula Committee Date

Approved By: _____
Dean, (DASA or the Graduate School) Date

Recommended By: _____
Dean's Council Date

Approved By: _____
Executive Vice Chancellor and Provost Date

Approved By: _____
Chancellor Date

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: 6/2019

Degree/Plan Title: B.S. in Sustainable Materials and Technology Concentration/Subplan Title:

Plan SIS Code: 15SMTBS Subplan SIS Code:

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
ENV or ES Elective ¹	3	ENG 101 Academic Writing & Research*	4
SMT 200 Intro. to Sustainable Materials Science	3	CH 101 Chemistry – A Molecular Science*	3 ^{CP}
MA 121 Elements of Calculus* ²	3 ^{CP}	CH 102 General Chemistry Lab*	1 ^{CP}
BIO 181 Intro Bio: Ecology, Evol, Biodiv.*	4	PY Elective* ³	4
GEP Humanities Requirement*	3	Advised Elective ⁴	3
	<i>Total:16</i>		<i>Total:15</i>
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 220 Introductory Organic Chemistry	3 ^{CP}	SMT 203 Physical Properties of Sust. Mat.	4 ^{CP}
CH 222 Organic Chemistry I Lab	1 ^{CP}	SMT 301 Chem. of Sust. Materials	3 ^{CP}
MIE 201 Introduction to Business Processes*	3	EC 205 Fund. of Economics*	3
IDS 201 Environmental Ethics*	3	GEP Health and Exercise Studies Requirement*	1
Advised Elective ⁴	3	Advised Elective ⁴	3
Technical Elective ⁵	3		
	<i>Total:16</i>		<i>Total:14</i>
SUMMER			
CREDITS	CREDITS		
SMT 210 Internship	1		
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
ISE 311 Engineering Econ. Analysis	3	SMT 302 Processing of Biomaterials	4
ST 311 Introduction to Statistics*	3	SMT 320 Industrial Chemical Pollutants	2
HESF 1** Fitness & Wellness*	1	GEP Additional Breadth Requirement*	3
Advised Elective ⁴	3	Advised Elective ⁴	3
Technical Elective ⁵	3	Technical Elective ⁵	3
	<i>Total:13</i>		<i>Total:15</i>
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
SMT 441 Mech. Properties of Sust. Materials	4	SMT 483 Capstone in SMT	3
SMT 444 Sust. Composites and Biopolymers	3	Environmental Law Elective* ⁶	3
SMT 450 Sustainable Business and Innovation	2	GEP Humanities Requirement*	3
PSE 476 Environmental LCA	3	Advised Elective ⁴	3
Technical Elective ⁵	3	Technical Elective ⁵	3
	<i>Total:15</i>		<i>Total:15</i>
Minimum Credit Hours Required for Graduation*: 120			

Major/Program Footnotes:

¹ Select from ENV 100 (Student Success in ENVFY) and ENV 101 (Exploring the Env.), or ES 100* (Entro to Env. Sci.)

² Student with appropriate math skills is encouraged to take MA 131 or MA 141

³ Select from PY 211 (College Physics I), or PY 205 (Physics for Engineers and Scientists I) and PY 206 (Physics for Engineers and Scientists I Lab)

⁴ Advised Electives (18 hours): Courses should expand student's sustainability portfolio and must be approved by a faculty advisor.

⁵ Technical Electives (15 hours): Student is encouraged to select courses that will fulfill an academic minor. Courses should enhance student's career objectives and must be approved by a faculty advisor.

⁶ Select from PS 320 (US Environmental Law & Politics), PS 336 (Global Environmental Politics), or ARE 309 (Environ Law & Economic Policy)*

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied. University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: MA 121, ST 311
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: CH 101, CH 102, PY elective, BIO 181
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: EC 205, PS 320 or PS 336 or ARE 309
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts or _____Mathematical Sciences/Natural Sciences/Engineering
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: IDS 201, MIE 201
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement:
- J. **Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: ES 100, IDS 201
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: X Proposed:

Proposed Effective Semester:

Degree/Plan Title: B.S. in Sustainable Materials and Technology

Concentration/Subplan Title:

Plan SIS Code: 15SMTBS

Subplan SIS Code:

New Degree Audit required? (Y or N)

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
ENV 100 Student Success in ENVFY and ES 101 Exploring the Env., or ES 100 Intro to Env. Sci.	3	EC 205 Fund. of Economics*	3
SMT 200 Intro. to Sustainable Materials Science	3	ENG 101 Academic Writing & Research*	4
MA 121 Elements of Calculus* ¹	3 CP	CH 101 Chemistry -- A Molecular Science*	3 CP
BIO 181 Intro Bio: Ecology, Evol, Biodiv.*	4	CH 102 General Chemistry Lab*	1 CP
GEP Humanities Requirement*	3	PY 211 General Physics I*	4
		GEP Health and Exercise Studies Requirement*	1
	<i>Total:16</i>		<i>Total:16</i>
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
CH 220 Introductory Organic Chemistry	3 CP	SMT 201 Sustainable Mat. for Green Housing*	2
CH 222 Organic Chemistry I Lab	1 CP	SMT 203 Physical Properties of Sust. Mat.	4 CP
MIE 201 Introduction to Business Processes*	3	SMT 232 Recycling to Create a Sust. Env.*	2
IDS 201 Environmental Ethics*	3	SMT 301 Chem. of Sust. Materials	3 CP
PS 320 US Environmental Law & Politics or PS 336 Global Environmental Politics or ARE 309 Environ Law & Economic Policy*	3	SMT 302 Processing of Biomaterials	4
Technical Elective ²	3	HESF 1** Fitness & Wellness*	1
	<i>Total:16</i>		<i>Total:16</i>
SUMMER			
SMT 210 Internship	1		
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
SMT 310 Intro. to Industrial Ecology*	3	SMT 320 Industrial Chemical Pollutants	2
ISE 311 Engineering Econ. Analysis	3	Com *** Speech Elective ³	3
ST 311 Introduction to Statistics*	3	GEP Additional Breadth Requirement*	3
ET 203 Pollution Prevention	1	Advised Elective ³	3
Technical Elective ²	3	Advised Elective ³	3
Technical Elective ²	3	Technical Elective ²	3
	<i>Total:16</i>		<i>Total:17</i>
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
SMT 441 Mech. Properties of Sust. Materials	4	SMT 483 Capstone in SMT	3
SMT 444 Sust. Composites and Biopolymers	3	GEP Humanities Requirement*	3
SMT 450 Sustainable Business and Innovation	2	Technical Elective ²	3
PSE 476 Environmental LCA	3	Advised Elective ³	3
Advised Elective ³	3	Advised Elective ³	3
	<i>Total:15</i>		<i>Total:15</i>
Minimum Credit Hours Required for Graduation*: 128			

Major/Program Footnotes:

¹ Student with appropriate math skills is encouraged to take MA 131 or MA 141

² Technical Electives (15 hours): Student is encouraged to select courses that will fulfill an academic minor. Courses should enhance student's career objectives and must be approved by a faculty advisor.

³ Advised Electives: Student chooses a course in coordination with his/her adviser.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 121, ST 311**
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101, CH 102, PY 211, BIO 181, SMT 202**
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **EC 205, PS 320 or PS 336 or ARE 309**
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts or _____ Mathematical Sciences/Natural Sciences/Engineering
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **ES 100, IDS 201, MIE 201, SMT 201, SMT 232, SMT 310**
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement:
- J. **Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **ES 100, IDS 201**
- K. **Foreign Language Proficiency** - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS**Format B**

<u>Degree/Plan Title:</u> B.S. in Sustainable Materials and Technology		<u>Plan SIS Code:</u> 15SMTBS
<u>Concentration/Subplan Title:</u>		<u>Subplan SIS Code:</u>
<u>Indicate requirements status:</u> Current:	Proposed: X	<u>Proposed Effective Semester:</u> 06/2019
<u>New Degree Audit required?</u> (Y or N) Y		
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.		

MAJOR FIELD OF STUDY REQUIREMENTS:		
Required Courses/Groups/ Electives:	Credit Hours	GEP category, if applicable
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – Indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
Departmental Requirements SMT 200, SMT 210, SMT 302 SMT 203 (CP), SMT 301 (CP) SMT 320, SMT 441, SMT 444, SMT 450, SMT 483 PSE 476 MIE 201 EC 205 ISE 311 GRP ___ (PS 320, or PS 336, or ARE 309) GRP ___ (ENV 100 and ENV 101, or ES 100) IDS 201	8 7 (CP) 14 3 3 3 3 3 3 3	Interdisciplinary Perspectives (3 hours) Social Sciences (3 hours) Social Sciences (3 hours) Interdisciplinary Perspectives (3 hours)
Mathematical Sciences GRP __ (MA 121, or MA 131, or MA 141) (CP) ST 311	3 (CP) 3	Mathematical Sciences (3 hours) Mathematical Sciences (3 hours)
Natural Sciences CH 101 (CP), CH 102 (CP) CH 220 (CP), CH 222 (CP) GRP 201 (PY 211, or PY 205 and PY 206) BIO 181	4 (CP) 4 (CP) 4 4	Natural Sciences (4 hours) Natural Sciences (3 hours)
Concentration Courses/Groups/Electives: Advised elective (Courses should expand student's sustainability portfolio and must be approved by a faculty advisor)	18	
Technical elective (Student is encouraged to select courses that will fulfill an academic minor. Courses should enhance student's career objectives and must be approved by a faculty advisor.)	15	
Free Electives:		
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	105 hours	

COLLEGE REQUIREMENTS:		
Orientation Course(s):		
Other:		
Total credit hours under College Requirements:	0 Hours	

NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS		At least one of the following must be listed:	
<p><i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category may not be subset to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i></p> <p><i>Specific courses should not be listed in any of the fields below other than ENG 101.</i></p>		<ol style="list-style-type: none"> 1 Choose course(s) from the University Approved GEP course list for this category. 2 Minimum requirements are satisfied by Major/College course requirements. 3 Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category. 4 Co-requisite is satisfied by a Major/College course requirement. 5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts. 6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences. 	
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)	
Mathematical Sciences (6 credits) <i>(At least 1 course with MA or ST prefix) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	<i>(Choose statement 1, 2 or 3)</i> Minimum requirements are satisfied by Major course requirements	
Natural Sciences (7 credits) <i>(At least 1 lab course or course with a lab) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	<i>(Choose statement 1, 2 or 3)</i> Minimum requirements are satisfied by Major course requirements	
English 101 (C- or better required) (4 credits)	4	ENG 101	
Humanities (6 credits) <i>(Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	<i>(Choose statement 1, 2 or 3)</i> Choose course(s) from the University Approved GEP course list for this category.	
Social Sciences (6 credits) <i>(Courses from two different disciplines) Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	<i>(Choose statement 1, 2 or 3)</i> Minimum requirements are satisfied by Major course requirements	
Additional Breadth (3 credits) <i>(Choose approach that is different from the approach of the Major) Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.</i>	3	<i>(Choose statement 5 or 6)</i> Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.	
Interdisciplinary Perspectives (5 credits) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	<i>(Choose statement 1, 2 or 3)</i> Minimum requirements are satisfied by Major course requirements	
Physical Education/Healthy Living (2 credits) <i>(Including one Fitness and Wellness course)</i>	2	Choose course(s) from the University Approved GEP course list for this category.	
Total credit hours needed to complete GEP that are not satisfied as part of the Major/College requirements.	15 hours		
GEP Co-Requisites:		<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" Indicator.</i>	
U.S. Diversity co-requisite (USD)	n/a	<i>(Choose statement 1 or 4)</i>	
Global Knowledge co-requisite (GK)	n/a	<i>(Choose statement 1 or 4)</i>	

Foreign Language Proficiency	n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:		Place an X in the credit hour box to indicate below that the requirement is "Satisfied by College/Program Requirements"
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements
Technology Fluency	X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.

NC STATE UNIVERSITY

College of Natural Resources
Campus Box 8005
Raleigh, NC 27695-8005
919.515.5807
919.515.6302 (fax)

Paper Science & Engineering 919.515.2888
Sustainable Materials & Technology 919.515.3181
WP Extension 919.515.5637

To: University Courses and Curricula Committee
From: Dr. Marko Hakovirta, Professor and Department Head, Forest Biomaterials
Date: September 24, 2018
Subject: Request to Revise the Wood Products concentration within the B.S. in Sustainable Materials and Technology Curriculum

By agreement among the faculty in the Sustainable Materials and Technology program and the Department Head, the Department of Forest Biomaterials requests approval for the revision of the Wood Products concentration within the B.S. in Sustainable Materials and Technology (SMT) curriculum. The proposed revision is in response to the UNC Board of Governors' recently amended policy requiring that four-year baccalaureate degree programs in constituent institutions have no more than 120 semester credit hours. The current concentration title is Wood Products, with a SIS code of 15SMTWP.

The revisions being proposed are as follows:

1. Eliminate 7 credit hours by removing SMT 201 (Sustainable Materials for Green Housing, 2 credit hours), SMT 232 (Recycling to Create a Sustainable Environment, 2 credit hours) and SMT 310 (Introduction to Industrial Ecology, 3 credit hours) from the curriculum.
Justification: All 3 courses will continue to be offered as GEP-Interdisciplinary Perspectives classes and SMT students may choose to use these classes to meet the university's GEP-IP requirement. SMT students may also use the classes to meet the curriculum's 15 credit hours of Advised Electives.
2. Eliminate 3 credit hours by removing the communication elective (COM XXX) from the curriculum.
Justification: Communication learning outcomes will continue to be integrated and assessed across the curriculum.
3. Add 2 credit hours of Advised Interdisciplinary Perspectives elective.
Justification: Students may use the courses listed in item 1 above to meet this credit requirement.

These changes will result in a decrease in the Minimum Credit Hours Required for Graduation from 128 to 120.

The revision to the SMT curriculum should not impact any other department or undergraduate program on campus. Consultation with other departments is not required.

The curriculum change will not impact students currently enrolled in the SMT program. The revised curriculum will be offered to current students who are on the 2018 degree audit, and they will be free to enroll in the revised program if it is more aligned with their interests.

Ideally the revised curriculum will be in place for students in the Fall of 2019.

North Carolina State University

This request has been reviewed and approved by the appropriate campus committees and authorities.

Endorsed By:

Head, Department/Program

9/27/2018

Date

Recommended By:

Chair, College Curriculum Committee

9-27-2018

Date

Endorsed By:

College Dean

28 Sept 2018

Date

Recommended By:

Vice Provost, DELTA (if DE degree/certificate)

Date

Recommended By:

Chair, University Courses & Curricula Committee

Date

Approved By:

Dean, (DASA or the Graduate School)

Date

Recommended By:

Dean's Council

Date

Approved By:

Executive Vice Chancellor and Provost

Date

Approved By:

Chancellor

Date

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: Proposed: X Proposed Effective Semester: 6/2019

Degree/Plan Title: B.S. in Sustainable Materials and Technology Concentration/Subplan Title: Wood Products

Plan SIS Code: 15SMTBS Subplan SIS Code: 15SMTWP

New Degree Audit required? (Y or N) Y

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
ENV or ES Elective ¹	3	SMT 240 Intro to Wood Products Industry	2
SMT 200 Intro to Sustainable Materials Science	3	ENG 101 Academic Writing & Research*	4
MA 121 Elements of Calculus* ²	3 ^{CP}	CH 101 Chemistry – A Molecular Science*	3 ^{CP}
BIO 181 Intro Bio: Ecology, Evol, Biodiv*	4	CH 102 General Chemistry Lab*	1 ^{CP}
GEP Humanities Requirement*	3	PY Elective* ³	4
	Total:16		Total:14
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
SMT 202 Anatomy and Prop of Biomaterials	3 ^{CP}	SMT 203 Physical Properties of Sust. Mat.	4 ^{CP}
CH 220 Introductory Organic Chemistry	3 ^{CP}	EC 205 Fund. of Economics*	3
CH 222 Organic Chemistry I Lab	1 ^{CP}	GEP Health and Exercise Studies Requirement*	1
MIE 201 Introduction to Business Processes*	3	Advised Elective ⁴	3
Advised Elective ⁴	3	Advised Elective ⁴	3
Technical Elective ⁵	3		
	Total:16		Total:14
SUMMER	CREDITS	SUMMER	CREDITS
SMT 206 Wood Manufacturing Site Visits	1	SMT 210 Internship	1
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
SMT 308 Wood Processing	4	SMT 301 Chem. of Sust. Materials	3 ^{CP}
ST 311 Introduction to Statistics*	3	ISE 311 Engineering Econ. Analysis	3
HESF 1** Fitness & Wellness*	1	GEP Additional Breadth Requirement*	3
Advised Elective ⁴	3	Advised Elective ⁴	3
Technical Elective ⁵	3	Technical Elective ⁵	3
	Total:14		Total:15
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
SMT 441 Mech. Properties of Sust. Materials	4	SMT 483 Capstone in SMT	3
SMT 444 Sust. Composites and Biopolymers	3	Environmental Law Elective* ⁶	3
SMT 450 Sustainable Business and Innovation	2	GEP Humanities Requirement*	3
PSE 476 Environmental LCA	3	Technical Elective ⁵	3
Technical Elective ⁵	3	Advised IP Elective* ⁷	2-3
	Total:15		Total:14
Minimum Credit Hours Required for Graduation*: 120			

Major/Program Footnotes:

¹ Select from ENV 100 (Student Success in ENVFY) and ENV 101 (Exploring the Env.) or ES 100* (Entro to Env. Sci.)

² Student with appropriate math skills is encouraged to take MA 131 or MA 141

³ Select from PY 211 (College Physics I), or PY 205 (Physics for Engineers and Scientists I) and PY 206 (Physics for Engineers and Scientists I Lab)

⁴ Advised Electives (15 hours): Courses should expand student's sustainability portfolio and must be approved by a faculty advisor.

⁵ Technical Electives (15 hours): Student is encouraged to select courses that will fulfill an academic minor. Courses should enhance student's career objectives and must be approved by a faculty advisor.

⁶ Select from PS 320 (US Environmental Law & Politics), PS 336 (Global Environmental Politics), or ARE 309 (Environ Law & Economic Policy)*

⁷ Course must be on the Interdisciplinary Perspectives list and approved by a faculty advisor

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 121, ST 311**
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101, CH 102, PY elective, BIO 181, SMT 202**
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **EC 205, PS 320 or PS 336 or ARE 309**
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts or _____ Mathematical Sciences/Natural Sciences/Engineering
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MIE 201, Advised IP elective**
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following Co-Requisites must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity (USD)**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement:
- J. **Global Knowledge (GK)**
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **ES 100, IDS 201**
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

FORMAT A
(SEMESTER-BY-SEMESTER CURRICULUM DISPLAY)

Indicate display status: Current: X Proposed:

Proposed Effective Semester:

Degree/Plan Title: B.S. in Sustainable Materials and Technology

Concentration/Subplan Title: Wood Products

Plan SIS Code: 15SMTBS

Subplan SIS Code: 1SSMTWP

New Degree Audit required? (Y or N)

Critical Path Courses - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.

FRESHMAN YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
ENV 100 Student Success in ENVFY and ES 101 Exploring the Env., or ES 100 Intro to Env. Sci.	3	EC 205 Fund. of Economics*	3
SMT 200 Intro. to Sustainable Materials Science	3	ENG 101 Academic Writing & Research*	4
MA 121 Elements of Calculus* ¹	3 ^{CP}	CH 101 Chemistry – A Molecular Science*	3 ^{CP}
BIO 181 Intro Bio: Ecology, Evol, Biodiv.*	4	CH 102 General Chemistry Lab*	1 ^{CP}
GEP Humanities Requirement*	3	PY 211 General Physics I*	4
		GEP Health and Exercise Studies Requirement*	1
	Total:16		Total:16
SOPHOMORE YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
SMT 202 Anatomy and Properties of Biomaterials	3 ^{CP}	SMT 201 Sustainable Mat. for Green Housing*	2
CH 220 Introductory Organic Chemistry	3 ^{CP}	SMT 203 Physical Properties of Sust. Mat.	4 ^{CP}
CH 222 Organic Chemistry I Lab	1 ^{CP}	SMT 232 Recycling to Create a Sust. Env.*	2
MIE 201 Introduction to Business Processes*	3	SMT 301 Chem. of Sust. Materials	3 ^{CP}
PS 320 US Environmental Law & Politics or PS 336 Global Environmental Politics or ARE 309 Environ Law & Economic Policy*	3	SMT 240 Intro to Wood Products Industry	2
Technical Elective ²	3	Technical Elective ²	3
	Total:16		Total:16
SUMMER			
CREDITS	CREDITS	CREDITS	CREDITS
SMT 206 Wood Manufacturing Site Visits	1		
SMT 210 Internship	1		
JUNIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
SMT 308 Wood Processing	4	ISE 311 Engineering Econ. Analysis	3
SMT 310 Intro. to Industrial Ecology*	3	Com *** Speech Elective ³	3
ST 311 Introduction to Statistics*	3	GEP Additional Breadth Requirement*	3
Technical Elective ²	3	Advised Elective ³	3
Technical Elective ²	3	Advised Elective ³	3
	Total:16		Total:15
SENIOR YEAR			
FALL SEMESTER	CREDITS	SPRING SEMESTER	CREDITS
SMT 441 Mech. Properties of Sust. Materials	4	SMT 483 Capstone in SMT	3
SMT 444 Sust. Composites and Biopolymers	3	GEP Humanities Requirement*	3
SMT 450 Sustainable Business and Innovation	2	Technical Elective ²	3
PSE 476 Environmental LCA	3	Advised Elective ³	3
Advised Elective ³	3	Advised Elective ³	3
HESF 1** Fitness & Wellness*	1		
	Total:16		Total:15
Minimum Credit Hours Required for Graduation*: 128			

Major/Program Footnotes:¹ Student with appropriate math skills is encouraged to take MA 131 or MA 141

² Technical Electives (15 hours): Student is encouraged to select courses that will fulfill an academic minor. Courses should enhance student's career objectives and must be approved by a faculty advisor.

³ Advised Electives: Student chooses a course in coordination with his/her adviser.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at <http://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 121, ST 311**
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101, CH 102, PY 211, BIO 181, SMT 202**
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement:
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **EC 205, PS 320 or PS 336 or ARE 309**
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts or _____ Mathematical Sciences/Natural Sciences/Engineering
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from the University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **ES 100, IDS 201, MIE 201, SMT 201, SMT 232, SMT 310**
- H. **Introduction to Writing** (4 credit hours satisfied by completing ENG 101 with a C- or better)

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

- I. **U.S. Diversity** (USD)
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement:
- J. **Global Knowledge** (GK)
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite. The following course(s) completed as part of the Major requirements may fulfill this requirement: **ES 100, IDS 201**
- K. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.

CURRICULUM REQUIREMENTS

Format B

<u>Degree/Plan Title:</u> B.S. in Sustainable Materials and Technology	<u>Plan SIS Code:</u> 1SSMTBS
<u>Concentration/Subplan Title:</u> Wood Products	<u>Subplan SIS Code:</u> 1SSMTWP
<u>Indicate requirements status:</u> Current: Proposed: X	<u>Proposed Effective Semester:</u> 06/2019
<u>New Degree Audit required?</u> (Y or N) Y	
<u>Critical Path Courses</u> - Identify using the code (CP) which courses are considered critical path courses which represent specific major requirements that are predictive of student success in a given program/plan. Place the (CP) next to the credit hours for the course.	

MAJOR FIELD OF STUDY REQUIREMENTS:	Credit Hours	GEP category, if applicable
<i>Required Courses/Groups/ Electives:</i>	<i>Credit Hours</i>	<i>GEP category, if applicable</i>
Indicate if course or course groupings have a C-wall or MGPA requirement and which are considered Critical Path courses – indicate with (CP) next to applic. course.		List GEP category and hours satisfied by a Major requirement
Departmental Requirements SMT 200, SMT 210 SMT 203 (CP), SMT 301 (CP) SMT 441, SMT 444, SMT 450, SMT 483 PSE 476 MIE 201 EC 205 ISE 311 GRP ____ (PS 320, or PS 336, or ARE 309) GRP ____ (ENV 100 and ENV 101, or ES 100)	4 7 (CP) 12 3 3 3 3 3	Interdisciplinary Perspectives (3 hours) Social Sciences (3 hours) Social Sciences (3 hours)
Mathematical Sciences GRP __ (MA 121, or MA 131, or MA 141) (CP) ST 311	3 (CP) 3	Mathematical Sciences (3 hours) Mathematical Sciences (3 hours)
Natural Sciences CH 101 (CP), CH 102 (CP) CH 220 (CP), CH 222 (CP) GRP 201 (PY 211, or PY 205 and PY 206) BIO 181	4 (CP) 4 (CP) 4 4	Natural Sciences (4 hours) Natural Sciences (3 hours)
<u>Concentration Courses/Groups/Electives:</u> Concentration Courses SMT 202 (CP), SMT 206, SMT 240, SMT 308 Advised elective (Course must be approved by a faculty advisor) Advised IP elective (Course must be on the Interdisciplinary Perspectives list and approved by a faculty advisor) Technical elective (Student is encouraged to select courses that will fulfill an academic minor. Courses should enhance student's career objectives and must be approved by a faculty advisor.)	10 15 2-3 15	Interdisciplinary Perspectives (2-3 hours)
<u>Free Electives:</u>		
Total credit hours under Major Field of Study: <i>Minimum 27 hours required in program area.</i>	105 hours	

COLLEGE REQUIREMENTS:		
Orientation Course(s):		
Other:		
Total credit hours under College Requirements:	0 Hours	

<u>NCSU GENERAL EDUCATION PROGRAM REQUIREMENTS</u>		At least one of the following must be listed:
<p><i>Courses in the Major and/or Minor may also fulfill a General Education requirement; however, a GEP category <u>may not be subset</u> to require a specific course from the category list. Required courses must be listed in the Major/College requirements.</i></p> <p><i>Specific courses should not be listed in any of the fields below other than ENG 101.</i></p>		<ol style="list-style-type: none"> 1 Choose course(s) from the University Approved GEP course list for this category. 2 Minimum requirements are satisfied by Major/College course requirements. 3 Major/College course requirement satisfies X credit hrs of this requirement. Remaining hours required must be chosen from the University Approved GEP course list for the category. 4 Co-requisite is satisfied by a Major/College course requirement. 5 Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts. 6 Choose course(s) from the University Approved GEP course lists for Natural Sciences/Mathematical Sciences.
General Education Program Requirements: <i>Minimum 39-40 hrs</i>	Credit hours	How will the GEP requirement be met? (Choose applicable statement from 1-6 listed above)
Mathematical Sciences (6 credits) (At least 1 course with MA or ST prefix) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major course requirements</i>
Natural Sciences (7 credits) (At least 1 lab course or course with a lab) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major course requirements</i>
English 101 (C- or better required) (4 credits)	4	ENG 101
Humanities (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	6	(Choose statement 1, 2 or 3) <i>Choose course(s) from the University Approved GEP course list for this category.</i>
Social Sciences (6 credits) (Courses from two different disciplines) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major course requirements</i>
Additional Breadth (3 credits) (Choose approach that is <i>different</i> from the approach of the Major) <i>Major/College requirements cannot satisfy this requirement and an AB course cannot be double-counted except in satisfying the Global Knowledge or U.S. Diversity co-requisites.</i>	3	(Choose statement 5 or 6) <i>Choose course(s) from the University Approved GEP course lists for the Humanities/ Social Sciences/ Visual & Performing Arts.</i>
Interdisciplinary Perspectives (5 credits) <i>Course(s) in the Major may double-count to satisfy this requirement and also satisfy either the Global Knowledge or U.S. Diversity co-requisites.</i>	X	(Choose statement 1, 2 or 3) <i>Minimum requirements are satisfied by Major course requirements</i>
Physical Education/Healthy Living (2 credits) (Including one <i>Fitness and Wellness</i> course)	2	<i>Choose course(s) from the University Approved GEP course list for this category.</i>
Total credit hours needed to complete GEP that are <u>not</u> satisfied as part of the Major/College requirements.	15 hours	
GEP Co-Requisites:		<i>Courses taken in the Major, GEP, or Minor may double-count to fulfill the co-requisites. Courses that satisfy the U.S. Diversity or Global Knowledge co-requisite are marked on course lists with a "USD" or "GK" indicator.</i>
U.S. Diversity co-requisite (USD)	n/a	(Choose statement 1 or 4)
Global Knowledge co-requisite (GK)	n/a	(Choose statement 1 or 4)

Foreign Language Proficiency	n/a	Proficiency at the FL_102 level required.
The following requirements must be satisfied within the College/Program:		Place an X in the credit hour box to indicate below that the requirement is "Satisfied by College/Program Requirements"
Communication in the Major (Advanced Communication)	X	Satisfied by College/Program Requirements
Technology Fluency	X	Satisfied by College/Program Requirements
Total credit hours required to complete Degree: Total must be within 120-128 credit hours.	120 Total hours	As applicable, indicate here the overall GPA requirement for degree completion including course completion.