

List new courses required for the new or revised curriculum. How do they support the overall program objectives of the major/minor/concentrations)?

(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter "None")

FREC 324 is a new course that is optional, not mandatory, in the new requirements. It offers a less quantitative alternative treatment of natural resource economics.

Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education: <http://www.ugs.udel.edu/gened/>

The NRM major is an interdisciplinary major that has always supported key elements of the General Education goals. Specifically, goals 1 Attain effective skills in oral and written communication, quantitative reasoning, and the use of information technology, 2 Learn to think critically to solve problems, 3 Engage questions of ethics, 5 Understand the diverse ways of thinking that underlie the search for knowledge in the arts, humanities, sciences and social sciences and 10 Develop an international perspective in order to live and work effectively in an increasingly global society.

The proposed revisions actually enhance this support via the addition of new courses in a variety of areas.

Identify other units affected by the proposed changes:

(Attach permission from the affected units. If no other unit is affected, enter "None")

None

Describe the rationale for the proposed program change(s):

(Explain your reasons for creating, revising, or deleting the curriculum or program.)

The Natural Resource Management major was initially approved in 1996 as a curriculum for student interested in the environment and the use of natural resources in the world. In 2001, minor changes to the curricula were made.

Since then, many new courses have been approved and/or deleted in the College and the University and new University requirements have been approved. The proposed revisions serve as a "update" of the NRM requirements to be current and consistent with other majors in the College .

Both faculty and graduates were solicited for their suggestions. NRM is technically a co-sponsored major, so the proposed revisions have been reviewed and approved by the Departments of Food and Resource Economics (Dr. Hastings), Entomology and Wildlife Ecology (Dr. Bowman) and Plant and Soils Sciences (Dr. Bowman). Selected alumni also provided input.

Two courses outside the co-sponsoring Departments are being added: ECON 311 and GEOG 210. Supporting emails from the Chairs of those Departments are attached. There is one new optional course, FREC 324, - this course is in the approval process.

Program Requirements:

(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the current curriculum and **include a side-by-side comparison** of the credit distribution before and after the proposed change.)

A current and revised CANR check sheet is attached. The revised check sheet also includes the new University breadth requirements and new College Requirements that have been submitted for approval.

ROUTING AND AUTHORIZATION:

(Please do not remove supporting documentation.)

Department Chairperson *[Signature]* Date 12/16/09
X Dean of College *[Signature]* Date 12/16/09
Chairperson, College Curriculum Committee *David Fry* Date 12/17/09
Chairperson, Senate Com. on UG or GR Studies _____ Date _____
Chairperson, Senate Coordinating Com. _____ Date _____
Secretary, Faculty Senate _____ Date _____
Date of Senate Resolution _____ Date to be Effective _____
Registrar _____ Program Code _____ Date _____
Vice Provost for Academic Affairs & International Programs _____ Date _____
Provost _____ Date _____
Board of Trustee Notification _____ Date _____

Name:	UDID:	Phone:
Catalog Date:	Minor(s):	Email:

Major Requirements:

CHEM 101 or 103	General Chemistry I	4	
CHEM 102 or 104	General Chemistry II	4	
ECON 151	Intro to Microeconomics	3	
ECON 152	Intro to Macroeconomics	3	
MATH 221	Calculus I	3	
MATH 222	Calculus II	3	
ENWC 201	Wildlife Conservation	3	
FREC 135	Intro to Data Analysis	3	
FREC 150	Econ of Ag & NR	3	
FREC 424	Resource Economics	3	
FREC 444	Economics of Environment	3	
FREC 480	GIS in NRM	4	
PLSC 101 or BISC 207/208	Botany I or Biology I & II	4 - 8	
PLSC 201	Botany II	4	
PLSC 204/205	Intro Soil Science/ Lab	3/1	

Group I: 6 cr. (3 in Oral Communication; 3 in Written)

COMM212	Oral Communication <i>(may count in Lit & Arts)</i>	3	
FREC 345	Strategic Selling	3	
*ENGL 301	Expository Writing	3	
*ENGL 312	Written Com. in Business	3	
*ENGL 410	Technical Writing	3	
*ENGL 415	Writing in the Professions	3	
UNIV 401 UNIV 402	Senior Thesis (writing course)		

*Or any course that satisfies the College of Arts and Science's second writing requirement.

Department requirements are approved by your advisor and the department chair or designee.

Advisor's Initials: _____

Department Designee: _____

Group II: 8 credits from the following:

CHEM 213	Elementary Organic	4	
CHEM 214	Elementary Biochemistry	3	
CHEM 216	Biochemistry Lab	1	
CHEM 220	Quantitative Analysis	3	
CHEM 221	Quantitative Lab	1	
CHEM 321	Organic Chemistry	4	
CHEM 322	Organic Chemistry	4	
PHYS 201	Intro Physics I	4	
PHYS 202	Intro Physics II	4	

Group III: 6 credits from the following:

FREC 408/409	Research Methods I, II	6	
MATH 201/202	Intro Statistics I, II	6	

Group IV: 6 credits from the following:

BISC 302	General Ecology	3	
ENWC 325	Wildlife Management	3	
ENWC 411 or PLSC 440	Integrated Disease and Pest Mgmt.	3	
GEOG 230, 235, or 236	<i>Only one of these may count in this group.</i>	3	
PLSC 305	Soil Fertility and Nutrition	4	

Group V: 6 credits from the following:

BISC 300	Intro to Microbiology	4	
ENWC 205	Elements of Entomology	3	
ENWC 215	Entomology Lab	1	
ENWC 318	Taxonomy of Birds	2	
ENWC 406	Insect Identification	3	
ENWC 418	Avian Biology	3	
ENWC 425	Mammalogy	3	
ENWC 426	Aquatic Insects	3	
PLSC 212	Woody Landscape	4	
PLSC 303	Intro Plant Pathology	4	
PLSC 404	Plant Taxonomy	3	

Group VI: 6 credits from the following:

BREG 103	Land and Water Mgmt	3	
BREG 113	Intro to Land Surveying	2	
BREG 328	Waste Water Management	3	
GEOL 107	General Geology	4	
GEOG 101	Physical Geography: Climate	3	
GEOG 106	Physical Geography: Land	3	
GEOG 220	Meteorology	3	
GEOG 320	Water and Society	3	

Group VII: 12 credits from the following, incl. 6 from FREC

ECON 306	Public Choice	3	
ECON 332	Public Finance and Fiscal Policy	3	
ECON 360	Government and Business	3	
BREG416	Project Economic Analysis	3	
FREC 406	Ag and NR Policy	3	
FREC 429	Community Economic Development	3	
FREC 450	Environmental Law	3	
POSC 220	Intro to Public Policy	3	
POSC 350	Politics and Environment	3	

Group VIII: 3 credits from the following:

PHIL 200	Business Ethics	3	
PHIL 202	Contemporary Moral	3	
PHIL 203	Ethics	3	
PHIL 340	Cross Cultural Environ	3	
PHIL 448	Environmental Ethics	3	

Elective Courses

◆NOTE:

It is possible that courses taken to fulfill Major requirements also may be used to fulfill University or College requirements; check your catalog and with your advisor for restrictions. In the case that one course fulfills two requirements, be advised that the credits count only ONCE toward the overall total. For example, using BISC 207 to fulfill both a Major requirement and the Ag & Bio Sciences requirement may be allowed; however, only 4 credits are counted toward the degree total.

◆University/College Requirements:

All requirements must be fulfilled as indicated in the University Catalog. Exceptions are granted only in extenuating circumstances and only by the Office of Academic Programs.

COURSE	TITLE	CH	GRADE
ENGL 110	Crit. Reading and Writing (minimum grade of C-)	3	
	Multicultural Course	3	
	Discovery Learning Exp.	3	
FREC 165	First Year Experience/FYE	1	

Ag and Bio Sciences (9 cr., 3 approved areas)

Literature and Arts (6 cr., approved areas)

AGRI 212 or COMM 212		--	

Social Science and Humanities (9 cr., 3 approved areas)

Physical Sciences (8 credits)

Signature of the Office of Academic Programs:

Total Credit Hours: (130) _____

Student Signature: _____

Comments:

Use this space to provide information on course substitutions or waivers. All changes to Departmental/Major requirements must be approved in writing by the Department Chair or designee. All changes to University/College requirements require approval of the Assistant Dean for Student Services.

Subject: Re: Inclusion of Geog 210
From: Brian Hanson <hanson@UDel.Edu>
Date: Mon, 7 Dec 2009 12:13:40 -0500
To: "Steven E. Hastings" <hastings@UDel.Edu>

Steven,

I checked with the usual instructor, Yda Schreuder, and she is fine with having the additional potential students. That course is part of our core Geography major requirements and we try to have it taught every year. Geography is fine with having you list GEOG 210 in your options for your majors.

Brian

Brian Hanson
Professor & Chair, Geography
University of Delaware

On Dec 7, 2009, at 10:49 AM, Steven E. Hastings wrote:

Brian - we are revising our Natural Resource Management Major and would like to include GEOG 210 as an optional course in Group VI - you can see the list at:

http://academiccatalog.udel.edu/Pub_ShowCatalogPage.aspx?CATID=623

It would be an option for students and the Department would not have to admit them.

Please let me know if this is OK by return email - Steve

--

Dr. Steven E. Hastings
Professor and Associate Chair
Food and Resource Economics
College of Agricultural and Natural Resources
University of Delaware
209 Townsend Hall
Newark, DE 19717-1303 USA

Phone: 302-831-1318
Fax: 302-831-6243
Email: hastings@udel.edu

Subject: RE: Addition of ECON 311
From: "Hoffman, Saul" <hoffmans@lerner.udel.edu>
Date: Mon, 7 Dec 2009 11:33:39 -0500
To: "Steven E. Hastings" <hastings@UDel.Edu>

Steve

I have no objection to your including ECON311 in this major as an optional course. Please be aware that this is a heavily enrolled course that serves the very large PSCI/IR major. It almost always fills up in the first few days of pre-registration.

Saul D. Hoffman
Professor and Chair, Department of Economics
University of Delaware
Newark, DE 19716
302-831-1907
302-831-6968 (Fax)

-----Original Message-----

From: Steven E. Hastings [<mailto:hastings@UDel.Edu>]
Sent: Monday, December 07, 2009 10:46 AM
To: Hoffman, Saul; Ilvento, Tom
Subject: Addition of ECON 311

Saul - we are revising our Natural Resource Management Major and would like to include ECON 311 as an optional course in Group VII - you can see the list at:

http://academiccatalog.udel.edu/Pub_ShowCatalogPage.aspx?CATID=623

It would be an option for students and the Department would not have to admit them.

Please let me know if this is OK by return email - Steve

--

Dr. Steven E. Hastings
Professor and Associate Chair
Food and Resource Economics
College of Agricultural and Natural Resources
University of Delaware
209 Townsend Hall
Newark, DE 19717-1303 USA

Phone: 302-831-1318
Fax: 302-831-6243
Email: hastings@udel.edu

Senate Resolution

Revision of the undergraduate major in Natural Resource Management to revise the required courses.

Name:	UDID:	Phone:
Catalog Date:	Minor(s):	Email:

Major Requirements:

CHEM 101 or 103	General Chemistry I	4	
CHEM 102 or 104	General Chemistry II	4	
ECON 151	Intro to Microeconomics	3	
ECON 152	Intro to Macroeconomics	3	
MATH 221	Calculus I	3	
MATH 222	Calculus II	3	
ENWC 201	Wildlife Conservation	3	
FREC 100	Sustainable Development	3	
FREC 135	Intro to Data Analysis	3	
FREC 150	Econ of Ag & NR	3	
FREC 324 or 424	Intro to Resource Economics or Resource Economics	3	
FREC 343 or 444	Environment Economics or Economics of Environmental Economics	3	
FREC 450	Topics in Environmental Law	3	
FREC 480	GIS in NRM	4	
PLSC 101 or BISC 207/208	Botany I or Biology I & II	4-8	
PLSC 201	Botany II	4	
PLSC 204/205	Intro Soil Science/ Lab	3/1	

Group I: 6 cr. - 3 in Oral Communication; 3 in Written Communication

COMM212 or AGRI 212	Oral Communication <i>(may count in Lit & Arts)</i>	3	
FREC 345	Strategic Selling and Buyer Communication	3	
*ENGL 301	Expository Writing	3	
*ENGL 312	Written Com. in Business	3	
*ENGL 410	Technical Writing	3	
*ENGL 415	Writing in the Professions	3	
UNIV 401/402	Senior Thesis	3	

***Or any course that satisfies the College of Arts and Science's second writing requirement.**

Group II: 8 credits from the following:

CHEM 213	Elementary Organic	4	
CHEM 214	Elementary Biochemistry	3	
CHEM 216	Biochemistry Lab	1	
CHEM 220	Quantitative Analysis	3	
CHEM 221	Quantitative Lab	1	
CHEM 321	Organic Chemistry	4	
CHEM 322	Organic Chemistry	4	
PHYS 201	Intro Physics I	4	
PHYS 202	Intro Physics II	4	

Group II: 6 credits from the following:

FREC 408/409	Research Methods I, II	6	
MATH 201/202	Intro Statistics I, II	6	

Group III: 6 credits from the following:

BISC 302	General Ecology	3	
ENWC 325	Wildlife Management	3	
ENWC 411 or PLSC 440	Insect Pest Management	3	
ENWC 416	Wildlife Habitat Management	3	
ENWC 419	Biological Control	3	
ENWC 435	Wildlife Population Dynamics	3	
ENWC 456	Conservation Biology	3	
GEOG 230, 235, or 236	<i>Only one of these may count in this group.</i>	3	
PLSC 305	Soil Fertility and Nutrition	4	

Group IV: 6 credits from the following:

BISC 300	Intro to Microbiology	4	
ENWC 205	Elements of Entomology	3	
ENWC 215	Entomology Lab	1	
ENWC 318	Taxonomy of Birds	2	
ENWC 406	Insect Identification - Taxonomy	3	
ENWC 418	Ornithology	3	
ENWC 425	Mammalogy	3	
ENWC 426	Aquatic Insects	3	
PLSC 212	Woody Landscape Plants	4	
PLSC 214	Indigenous Woody Plants of the Eastern U.S.	4	
PLSC 303	Intro Plant Pathology	4	
PLSC 404	Plant Taxonomy	3	

Group V: 6 credits from the following:

BREG 103	Land and Water Mgmt	3	
BREG 113	Intro to Land Surveying	3	
BREG 328	Waste Water Treatment Systems	3	
GEOG 107	General Geology	4	
GEOG 101	Physical Geography: Climatic Processes	3	
GEOG 106	Physical Geography: Land Surface Processes	3	
GEOG 210	Economic Geography	3	
GEOG 220	Meteorology	3	
GEOG 320	Water and Society	3	

Group VI: 9 credits from the following, incl. 3 from FREC

BREG 416	Economic project Analysis	3	
ECON 306	Public Choice	3	
ECON 311	Economics of Developing Countries	3	
ECON 332	Economics of Government Spending and Taxation	3	
ECON 360	Government and Business	3	
ENWC 416	Wildlife Policy and Administration	3	
FREC 406	Agricultural and Natural Resource Policy	3	
FREC 429	Community Economic Development	3	
FREC 450	Environmental Law	3	
POSC 220	Intro to Public Policy	3	
POSC 350	Politics and Environment	3	

Group VII: 3 credits from the following:

PHIL 200	Business Ethics	3	
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Elective Courses

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COURSE	TITLE	CH	GRADE
ENGL 110	Crit. Reading and Writing (minimum grade of C-)	3	
	Multicultural Course	3	
	Discovery Learning Exp.	3	
FREC 165	First Year Experience/FYE	1	
Creative Arts and Humanities		3	
History and Cultural Change		3	
Social and Behavioral Sciences		3	
Math, Natural Sciences and Technology		3	

Student Signature: _____

Advisor's Signature: _____

Major requirements are approved by your advisor and the department chair or designee.

Department Designee: _____

Signature of the Office of Academic Programs:

Comments:

Use this space to provide information on course substitutions or waivers. All changes to Departmental/Major requirements must be approved in writing by the Department Chair or designee. All changes to University/College requirements require approval of the Assistant Dean for Student Services.

❖College Requirements: All requirements must be fulfilled as indicated in the University Catalog. Exceptions are granted only in extenuating circumstances and only by the Office of Academic Programs

Agriculture and Natural Resources (9 credits in 3 approved areas)

Physical Sciences – CHEM, GEOL, PHYS, or SCEN (8 credits)

❖NOTE:

It is possible that courses taken to fulfill Major requirements also may be used to fulfill University or College requirements; check your catalog and with your advisor for restrictions. In the case that one course fulfills two requirements, be advised that the credits count only ONCE toward the overall total. ~~For example, using BISC 207 to fulfill both a Major requirement and the Ag & Bio Sciences requirement may be allowed; however, only 4 credits are counted toward the degree total.~~

Total Credit Hours: (~~130~~ 124) _____