

Fiscal Unit/Academic Org	Evolution, Ecology & Org Bio - D0390
Administering College/Academic Group	Arts And Sciences
Co-administering College/Academic Group	Biological Sciences
	Arts And Sciences
Semester Conversion Designation	Re-envisioned with significant changes to program goals and/or curricular requirements (e.g., degree/major name changes, changes in program goals, changes in core requirements, structural changes to tracks/options/courses)
Current Program/Plan Name	Evolution & Ecology Minor
Proposed Program/Plan Name	Evolution & Ecology Minor
Program/Plan Code Abbreviation	EVOLECO-MN
Current Degree Title	

Credit Hour Explanation

Program credit hour requirements		A) Number of credit hours in current program (Quarter credit hours)	B) Calculated result for 2/3rds of current (Semester credit hours)	C) Number of credit hours required for proposed program (Semester credit hours)	D) Change in credit hours
Total minimum credit hours required for completion of program		21	14.0	15	1.0
Required credit hours offered by the unit	Minimum	16	10.7	15	4.3
	Maximum	16	10.7	15	4.3
Required credit hours offered outside of the unit	Minimum	5	3.3	0	3.3
	Maximum	5	3.3	0	3.3
Required prerequisite credit hours not included above	Minimum	51	34.0	18	16.0
	Maximum	51	34.0	18	16.0

Explain any change in credit hours if the difference is more than 4 semester credit hours between the values listed in columns B and C for any row in the above table

10 credits of Mathematics, 10 credits of Physics and 6 hr of organic chemistry were required as supporting courses in the quarter systems, but will not be required in the semester conversion. These courses are likely to be taken in fulfillment of a BA or BS in another discipline of science, which is where our student pool for the minor usually occurs. MolGen 500 (5 hr) was required in the quarter system, but will not be required for semesters. An increase in coursework within the EE curriculum will substitute for previously required coursework in other departments.

Program Learning Goals

Note: these are required for all undergraduate degree programs and majors now, and will be required for all graduate and professional degree programs in 2012. Nonetheless, all programs are encouraged to complete these now.

Program Learning Goals

- Students understand the processes that underlie evolution and be familiar with their manifestation in the natural world.
- Students understand ecological concepts, methods of study, and the interactions among organisms and between organisms and their environment.
- Students understand organismal diversity and functioning at all levels, from the molecular and cellular to the whole organism, and will understand the interplay between organismal functioning and ecological and evolutionary processes.
- Students participate in the process of discovery by conducting experimental and observational studies, synthesizing results with the primary literature, and communicating their questions, hypotheses, observations, and experiences to others.
- Students are knowledgeable in mathematics, statistics, computer modeling, and the use of computers, as these topics relate to biology.
- Students know the theoretical framework of evolution, ecology and organismal biology and understand science as a process, including the history of science as it relates to these three disciplines within biology.
- Students are familiar with current issues in biology, especially those that have significant ethical and societal implications, and will be able to communicate scientific concepts and processes.

Assessment

Assessment plan includes student learning goals, how those goals are evaluated, and how the information collected is used to improve student learning. An assessment plan is required for undergraduate majors and degrees. Graduate and professional degree programs are encouraged to complete this now, but will not be required to do so until 2012.

Is this a degree program (undergraduate, graduate, or professional) or major proposal? No

Program Specializations/Sub-Plans

If you do not specify a program specialization/sub-plan it will be assumed you are submitting this program for all program specializations/sub-plans.

Pre-Major

Does this Program have a Pre-Major? No

Attachments

- EE minor docs.pdf
(Program Proposal. Owner: Wolfe, Andrea Dayle)
- Ecology and Evolution minor cover letter.doc: NMS Division of Arts and Sciences cover letter
(Letter from the College to OAA. Owner: Andereck, Claude David)

Comments

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Wolfe,Andrea Dayle	12/06/2010 02:02 PM	Submitted for Approval
Revision Requested	Wolfe,Andrea Dayle	12/06/2010 03:19 PM	Unit Approval
Submitted	Wolfe,Andrea Dayle	12/06/2010 03:23 PM	Submitted for Approval
Approved	Wolfe,Andrea Dayle	12/06/2010 03:24 PM	Unit Approval
Revision Requested	Andereck,Claude David	12/08/2010 12:41 PM	College Approval
Submitted	Wolfe,Andrea Dayle	12/13/2010 11:45 AM	Submitted for Approval
Approved	Wolfe,Andrea Dayle	12/13/2010 11:46 AM	Unit Approval
Revision Requested	Andereck,Claude David	12/13/2010 03:36 PM	College Approval
Submitted	Wolfe,Andrea Dayle	12/13/2010 04:08 PM	Submitted for Approval
Approved	Wolfe,Andrea Dayle	12/13/2010 04:10 PM	Unit Approval
Revision Requested	Andereck,Claude David	12/13/2010 04:52 PM	College Approval
Submitted	Wolfe,Andrea Dayle	12/13/2010 05:09 PM	Submitted for Approval
Approved	Wolfe,Andrea Dayle	12/13/2010 05:10 PM	Unit Approval
Approved	Andereck,Claude David	12/13/2010 05:20 PM	College Approval
Pending Approval	Nolen,Dawn Jenkins,Mary Ellen Bigler Meyers,Catherine Anne Vankeerbergen,Bernadette Chantal Hanlin,Deborah Kay	12/13/2010 05:20 PM	ASCCAO Approval

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December 13, 2010

Larry Krissek
Chair, Arts and Sciences CCI

Dear Larry:

It is a pleasure to forward to you the proposal for the undergraduate minor in Evolution and Ecology under semesters. The minor has been modified from its present quarter version through a significant re-structuring of courses, as well as by decreasing the prerequisite requirements.

Beyond my own review of the documents, the proposal has been discussed by colleagues from other NMS units at a meeting on December 8, 2010. Feedback from the discussions has been incorporated in the proposal.

If you have any questions, I would be happy to address them.

Sincerely,



David Andereck
Professor of Physics
Associate Dean of Natural and Mathematical Sciences, College of Arts and Sciences



To: Office of Academic Affairs

From: Dr. Peter S. Curtis, Chair, Department of EEOB

A handwritten signature in black ink, appearing to read "P. S. Curtis", written over the "From:" line.

Date: 22 November 2010

Re: Semester Program Proposals for Evolution and Ecology and Zoology majors

The Department of EEOB has the following programs that will be converted from quarters to semesters:

- 1) Undergraduate Zoology Major (BS & BA)
- 2) Undergraduate Evolution & Ecology Major (BS)
- 3) Undergraduate Zoology Minor
- 4) Undergraduate Evolution & Ecology Minor
- 5) Evolution, Ecology and Organismal Biology MS
- 6) Evolution, Ecology and Organismal Biology PhD

We will be proposing semester programs for each of these six areas, beginning with the undergraduate majors and minors and then for each of the graduate programs.

The EEOB curriculum committee has been working on the semester conversion for the past academic year, involving both discussion by the faculty as a whole and more focused attention by three working groups of faculty and staff covering each of the major areas of research and teaching covered in our department: Evolution, Ecology, and Organismal Biology. We have revised the program goals from our previous major program change, which occurred when faculty from the Departments of Zoology and Plant Biology merged to form the Department of EEOB in 1998. One of the major differences between our previous program goals and the revised ones is addition of the goal that all of our students will be "knowledgeable in mathematics, statistics, computer modeling, and the use of computers, as these topics relate to biology." To meet this program goal we have added a requirement for statistics in all undergraduate majors and an additional course in quantitative analysis for the Evolution and Ecology major.

Our semester conversion efforts were launched with a faculty retreat in November 2009 specifically focused on curricular discussions. The curriculum committee took the lead in framing curricular revisions, first by mapping our existing courses onto our program goals, and second by noting overlaps of information across our curriculum that offered opportunities for combining courses with similar curricular content into courses that can fit

easily into a semester format. In January 2010, the three working groups mentioned above were formed to assess and revise the content of our curriculum in three major areas: evolution, ecology, and organismal biology. The proposed curricular changes were discussed during faculty meetings in Spring Quarter 2010 and approved by the entire faculty at the beginning of Autumn Quarter 2010.

Semester courses in which content was combined from our existing curriculum include:

EEOB 3410 Ecology – combines the lecture (503.01) and lab content (503.02) of our General Ecology course.

EEOB 3320 Organismal Diversity – combines the content of the lecture (405.01) and lab (405.02) content of our Organismal Diversity course.

EEOB 3420 Behavioral Ecology – combines the content of our Introductory Ethology course with three related courses that were taught less frequently into one comprehensive course.

EEOB 4430 Ecological Methods I– A new course that combines the methods instruction content of each of a number of our ecological courses with field components into a comprehensive course that will be offered each May term.

EEOB 5420 Aquatic Ecosystems – Ecology of Inland Waters – combines the content of two freshwater ecology courses (Plankton and Limnology) into a comprehensive course on the ecology of freshwater ecosystems.

EEOB 5430 Aquatic Ecosystems - Fish Ecology – combines the content of two related courses on fish biology into one comprehensive course.

EEOB 5460 Physiological Ecology – combines the content of our plant and animal physiological ecology courses into one comprehensive course.

EEOB 5470 Community Ecosystems and Ecology – combines the ecological content from our Biogeography course with our Community Ecology and Ecosystems course.

The decision to restructure the curriculum in this fashion came after a thorough examination of course content and curricular mapping of our quarters classes. The Department of EEOB is committed to excellence in teaching and has initiated professional development workshops (course development and pedagogy) through UCAT for all teaching faculty and staff. These workshops will take place in Winter and Spring quarters of 2011.

Rationale for Changes to the Undergraduate Evolution and Ecology Minor

The Department of Evolution, Ecology, and Organismal Biology (EEOB) currently offers an undergraduate minor program in Evolution and Ecology (EE). The minimal required supportive courses are reduced for the minor, as compared with the EE major degree. Required supportive courses for the EE minor include: BIO 1113 and 1114, and CHEM 1210 and 1220.

Recommended courses include a two-semester sequence of physics (PHYSICS 1250, 1251), MATH 1151 or 1156, and one semester of organic chemistry (CHEM 2310 or 2510). STAT 2480 or 2450 will not be required for the minor but will be advised as strongly recommended. In addition to satisfying these requirements the EE minor requires a minimum of 15 semester units, including core courses in Evolution (EEOB 3310, 4 units), Biodiversity (EEOB 3320, 3 units), and Ecology (EEOB 3410, 4 units). A student must select additional courses from the core categories of biodiversity and evolution/ecology as specified in the EE major.

As noted in our cover letter, several courses have been restructured to combine content of related courses into more comprehensive semester courses. These include: EEOB 3410 – Ecology; EEOB 3320 – Organismal Diversity; EEOB 3420 – Behavioral Ecology; EEOB 4430 – Ecological Methods I; EEOB 5420 – Aquatic Ecosystems (Ecology of Inland Waters); EEOB 5430 – Aquatic Ecosystems (Fish Ecology); EEOB 5460 – Physiological Ecology; and EEOB 5470 – Community Ecosystems and Ecology. The decision to restructure the curriculum in this fashion came after a thorough examination of course content and curricular mapping of our quarters classes.

Transition Policy

For students declaring a minor in Evolution and Ecology (EE) within the three years prior to the transition to semesters, the old requirements will be followed if the student so wishes, but these students will also have the option of using the new requirements. Adequate resources and personnel for advising students during the transition period currently exist in the Department of EEOB and so we foresee no difficulties in easing our students into the semester conversion.

Course Listing and Curriculum Map for the Evolution and Ecology Minor

Required supportive courses (do not count towards hours in the minor)

Requirements	Semester Course Number	Course Title	Semester Units	Quarter Equivalent Course Number	Quarter Credits	Notes	Relevant Program Goals
Biology	BIO 1113	Intro Bio	4	BIO 113	5	BIO 115H also accepted	1,2,3
	BIO 1114	Intro Bio	4	BIO 114	5	BIO 116H also accepted	1,2,3
General Chem	CHEM 1210, 1220	General Chem	10	CHEM 121,122,123	15	2 semesters of general chemistry required for program	4
	CHEM 2510	Organic Chem	n/a	CHEM 231,232	6	Not required for EE minor	
Math	MATH 1151	Calculus I	n/a	MATH 151,152	10	Not required for EE minor	
Physics			n/a	PHYSICS 111, 112	10	Not required for EE minor	

Required core courses

	EEOB 3310 or 3310H	Evolution	4	EEOB 400H	5	Enhanced content	1*, 3*, 5*, 6*, 7*
	EEOB 3320	Org Diversity	3	EEOB 405.01 EEOB 405.02	4 2	Merges contents of EEOB 405.01 and 405.02; combination of lab and lecture	1*,2*,3*,4*,7*
	EEOB 3410 or 3410H	Ecology	4	EEOB 503.01 and EEOB 503.02, or EEOB 503.03	4 2 6	Combines the content of the independent lecture and lab courses (6 hrs), or replaces the 6 hr EEOB 503.03 course	2*,3*,5*
	MOLGEN 4500	General Genetics	n/a	MOLGEN 500	5	Not required core in semesters	

Elective courses in Evolution and Ecology (choose one or more for 4 hr total)

	EEOB 2210	Ohio Plants	2		EEOB 210	5	7-week course, similar content	1,2,3,4,6,7
	EEOB 2220	Ohio Birds	2		EEOB 322	5	7-week course, similar content	1,2,3,4,6,7
	EEOB 3420	Behavioral Ecol	4		EEOB 440 EEOB 620 EEOB 730 EEOB 740	4 4 3 5	Combines the content of four courses (Ethology, Animal Communication, Bioacoustics, and Behavioral Ecology) into one comprehensive course on Behavioral Ecology; eliminates curricular content duplication from existing quarters courses	2*,3*
	EEOB 4210	E&E Vertebrates	2-4		EEOB 470	5	Similar or enhanced content (if taught as 14 week course)	1*,2*,3*,4*
	EEOB 4220	E&E Mammals	2-4		EEOB 625	5	Similar or enhanced content (if taught as 14 week course)	1*,2*,3*,4*
	EEOB 4230	E&E Invertebrates	2-4				New course	1*,2*,3*,4*
	EEOB 4240	E&E Plants People	2-4		EEOB 502	4	Similar or enhanced content (if taught as 14 week course)	1*,2*,3*,4*,7*
	EEOB 4410	Conserv Biol	3		EEOB 661	5	Similar content	2,*5*,7*
	EEOB 4420	Trop Field Studies	2		EEOB 557H	3	Similar content	2*,5*
	EEOB 4430	Ecol Methods I	1-2				New course	2*,3*,5
	EEOB 5310	Adv Evolution	3		EEOB 673	5	New course title, similar content as previous course, plus addition of animal case studies	1**,2*,3**,4*,5*,6**,7**
	EEOB 5320	Creation & Evol	3		EEOB 710	5	Same content	1**,6**,7**
	EEOB 5410	Ocean Ecology	1.5-3		EEOB 505	5	New course title, same content as previous course	2**,3*,5*
	EEOB 5420	Ecol Inland Waters	1.5-3		EEOB 647 EEOB 655	5 5	Combines the content of two courses (Plankton and Limnology); eliminates curricular content duplication from existing quarters courses	2**,3*,5*
	EEOB 5430	Fish Ecology	1.5-3		EEOB 626 EEOB 621	5 5	Combines the content of two courses (Biology of Fishes and Ichthyology); eliminates curricular content duplication from existing quarters courses	2**,3*,5*
	EEOB 5450	Popul Ecology	3		EEOB 671	5	Same content	2**,5**
	EEOB 5460	Physio Ecology	3		EEOB 654.01 EEOB 674	4 5	Combines the contents of two course (Ecological Physiology of Animals and Physiological Ecology of Plants); eliminates curricular content duplication from existing quarters courses	2**,5**
	EEOB 5470	Comm Ecosys Ecol	3		EEOB 700 EEOB 720	5 5	Combines content from two courses (Biogeography and Community Ecology and Ecosystems); eliminates curricular content duplication from existing quarters courses	2**,3**,4**,5**

Program learning goals:

1. Students understand the processes that underlie evolution and are familiar with their manifestation in the natural world.
2. Students understand ecological concepts, methods of study, and the interactions among organisms and between organisms and their environment.
3. Students understand organismal diversity and functioning at all levels, from the molecular and cellular to the whole organism, and will understand the interplay between organismal functioning and ecological and evolutionary processes.
4. Students participate in the process of discovery by conducting experimental and observational studies, synthesizing results with the primary literature, and communicating their questions, hypotheses, observations, and experiences to others.
5. Students are knowledgeable in mathematics, statistics, computer modeling, and the use of computers, as these topics relate to biology
6. Students know the theoretical framework of evolution, ecology and organismal biology and understand science as a process, including the history of science as it relates to these three disciplines within biology.
7. Students are familiar with current issues in biology, especially those that have significant ethical and societal implications, and will be able to communicate scientific concepts and processes.

Notes:

Program goal numbers that have no asterisk indicate a beginner's level; * = intermediate level; ** = advanced level.

Honors versions of courses may be substituted in all cases; no more than three units of S/U credit can count toward the major.

Evolution and Ecology Minor Program

Name _____

Semester of Graduation _____

Supporting Courses

Biology (2 courses)

- Biology 1113 or 1113H (4 hr)
- Biology 1114 or 1114H (4 hr)
- Substitution
- Waived

Chemistry (2 courses)

- Chemistry 1210 (5 hr)
- Chemistry 1220 (5 hr)
- Substitution
- Waived

Substitution

A course in statistics is strongly recommended.

Core Courses

- EEOB 3310 or 3310H (4 hr)
- EEOB 3320 (3 hr)
- EEOB 3410 or 3410H (4 hr)

Elective Courses

Biodiversity and Evolution and Ecology (need at least 4 hr)

- | | |
|---|---|
| <input type="checkbox"/> EEOB 2210 (2 hr) | <input type="checkbox"/> EEOB 4430 (2 hr) |
| <input type="checkbox"/> EEOB 2220 (2 hr) | <input type="checkbox"/> EEOB 5310 (3 hr) |
| <input type="checkbox"/> EEOB 3420 (4 hr) | <input type="checkbox"/> EEOB 5320 (3 hr) |
| <input type="checkbox"/> EEOB 4210 (2 hr) | <input type="checkbox"/> EEOB 5410 (1.5 hr) |
| <input type="checkbox"/> EEOB 4220 (2 hr) | <input type="checkbox"/> EEOB 5420 (1.5 hr) |
| <input type="checkbox"/> EEOB 4230 (2 hr) | <input type="checkbox"/> EEOB 5430 (1.5 hr) |
| <input type="checkbox"/> EEOB 4240 (2 hr) | <input type="checkbox"/> EEOB 5450 (3 hr) |
| <input type="checkbox"/> EEOB 4410 (2 hr) | <input type="checkbox"/> EEOB 5460 (3 hr) |
| <input type="checkbox"/> EEOB 4420 (2 hr) | <input type="checkbox"/> EEOB 5470 (3 hr) |

Minor coursework must total at least 15 semester units.

Advisor (Printed)

Advisor (Signature)

Date

Evolution and Ecology Minor Program

The Evolution and Ecology major includes coursework that focuses on evolutionary and ecological phenomena in plants, fungi, and microbes as well as animals.

Part A. Required Prerequisites or Supplements to the Minor (do not count toward 21 hour minor)

Courses	Hours
<input type="checkbox"/> Biology 113-114 or H115-H116	10
<input type="checkbox"/> Chemistry 121, 122, 123, 251 and 252	21
<input type="checkbox"/> Mathematics 151-152	10
<input type="checkbox"/> Physics 111-112 or 131-132	10

Part B. Core Requirements

<input type="checkbox"/> EEOB 400 or H400	5
<input type="checkbox"/> EEOB 503.01 and 503.02 or H503.01 and H503.02	6
<input type="checkbox"/> Molecular Genetics 500	5

Part C. Other Major Courses

1. Additional 5 credit hours of courses in EEOB at the 200 level or higher (excluding EEOB 232 and 235) must be taken.

For more information about the Evolution and Ecology minor, contact:

Professor Dave Stetson, stetson.1@osu.edu, 614-292-5307
see also: <http://www.biosci.ohio-state.edu/~eeob/>