

<b>Fiscal Unit/Academic Org</b>	Evolution, Ecology & Org Bio - D0390
<b>Administering College/Academic Group</b>	Arts And Sciences
<b>Co-administering College/Academic Group</b>	Biological Sciences Arts And Sciences
<b>Semester Conversion Designation</b>	Converted with minimal changes to program goals and/or curricular requirements (e.g., sub-plan/specialization name changes, changes in electives and/or prerequisites, minimal changes in overall structure of program, minimal or no changes in program goals or content)
<b>Current Program/Plan Name</b>	Evolution & Ecology
<b>Proposed Program/Plan Name</b>	Evolution & Ecology Bachelor of Science Degree
<b>Program/Plan Code Abbreviation</b>	EVOLECO-BS
<b>Current Degree Title</b>	Bachelor of Science

**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		45	30.0	30	0.0
Required credit hours offered by the unit	Minimum	35	23.3	24	0.7
	Maximum	35	23.3	24	0.7
Required credit hours offered outside of the unit	Minimum	10	6.7	6	0.7
	Maximum	10	6.7	6	0.7
Required prerequisite credit hours not included above	Minimum	63	42.0	40	2.0
	Maximum	63	42.0	40	2.0

**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? Yes**

**Does the degree program or major have an assessment plan on file with the university Office of Academic Affairs? Yes**

**Summarize how the program's current quarter-based assessment practices will be modified, if necessary, to fit the semester calendar.**

No modifications are needed at this time.

**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**

- EEOB EE BS supporting docs.pdf

*(Program Proposal. Owner: Wolfe,Andrea Dayle)*

**Comments****Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Wolfe,Andrea Dayle	11/01/2010 11:01 AM	Submitted for Approval
Approved	Wolfe,Andrea Dayle	11/01/2010 11:03 AM	Unit Approval
Pending Approval	Andereck,Claude David	11/01/2010 11:03 AM	College Approval

Status: PENDING

**PROGRAM REQUEST**  
Evolution & Ecology Bachelor of Science  
Degree

Last Updated: Wolfe, Andrea Dayle  
11/01/2010

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Department of Evolution, Ecology, and Organismal Biology

College of Arts and Sciences  
318 West 12th Avenue  
Columbus, OH 43210-1293

Phone (614) 292-8088  
Fax (614) 292-2030

To: Office of Academic Affairs  
From: Peter S. Curtis, Chair, Department of EEOB  
Date: 1 November 2010  
Re: Semester Program Proposal for Undergraduate Evolution & Ecology Major

A handwritten signature in black ink, appearing to be "P. Curtis", written over the "From:" line of the letterhead.

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

- 1) Undergraduate Zoology Major
- 2) Undergraduate Evolution & Ecology Major
- 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 the faculty as a whole and by dividing the faculty into three working groups covering each of the major areas of research covered in our department: Evolution, Ecology, and Organismal Biology. Program goals were revised 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.

Our semester conversion efforts launched with a faculty retreat in November 2009 that was specifically focused on curriculum discussions. The curriculum committee took the lead in framing curriculum revisions, first by mapping our existing courses onto our program goals. Overlap of information across our curriculum was noted and provided the impetus for combining courses with similar curriculum content into courses that will easily fit a semester format. In January 2010, three working groups were formed to assess and revise the content of our curriculum into three major areas: evolution, ecology, and organismal biology. The proposed curriculum changes were discussed during faculty meetings Spring Quarter 2010 and approved by the entire faculty at the beginning of Autumn Quarter 2010.

## **Rationale for Changes to the Undergraduate Evolution and Ecology Majors Programs**

The Department of Evolution, Ecology, and Organismal Biology (EEOB) currently offers a BS and BA in Evolution and Ecology (EE). Under semesters, the BA option for the EE major will be eliminated because we've increased the quantitative elements of the EE degree to the point that it would be unfeasible to reduce the course load for a BA degree. Other changes to this major are summarized below.

### **Evolution and Ecology Major - BS**

The Department of Evolution, Ecology, and Organismal Biology (EEOB) currently offers a BS undergraduate major program in Evolution and Ecology. The EE major is appropriate for students interested in the evolution of species, or in the interactions of species at the population, community, and ecosystem levels. The EE major serves as an excellent foundation for students intending to pursue graduate study in organismal biology, evolution, or ecology. It also provides the educational background for pursuing many career tracks in natural science.

Under the semester system, the basic structure of the EE major will be maintained while providing students greater flexibility. Required supportive courses include: BIOL 1113 and 1114, MATH 1151 or 1156, a two-semester sequence of inorganic chemistry, and a two-semester sequence of physics. The EE majors will be only be required to take one semester of organic chemistry, rather than the two-semester sequence of inorganic chemistry required by EEOB Zoology majors, thus providing greater flexibility by increasing the options for other courses within the major. The five core courses/areas of the EE major are evolution, ecology, integrated biology, biodiversity, and advanced concepts in evolution/ecology. For each of the first three core areas only one course (or honors version thereof) will satisfy the requirement (Evolution: EEOB 3310; Ecology: EEOB 3410; and Integrated Biology: Biology 2401). However, for the remaining two areas, biodiversity and advanced evolution/ecology, students may choose from a variety of courses. Students must take two courses in biodiversity from among seven possibilities, and two courses in advanced evolution/ecology from among 11 possibilities. These requirements are quite similar to the corresponding requirements in the quarter system. The requirement for a statistics course was included in the major under the quarter system, and has been retained under the semester system. An additional course focused on advanced quantitative skills will also be required for the major. The minimum number of units (semester hours) in the major is 30, and, depending on which courses a student chooses to satisfy the core requirements, she/he will need between zero and 10 units of electives to achieve this minimum. Courses acceptable as electives include any course in EEOB at the 2000 level or higher, as well as courses in other departments, as long as these courses fulfill the goals of the EE major. Students will need to consult the EEOB EE advisor if they are uncertain whether a particular course can count as an elective in the major.

## **Transition Policy: Evolution and Ecology major – BS**

Students who have declared the BS Evolution and Ecology (EE) major within the three years prior to the switch to semesters can finish under the old requirements or they can switch to the new ones. Since every core course or category under the old requirements has its equivalent (often with more options) under the new requirements, we do not foresee any great difficulties arising during the transition. The exception to this statement is the introductory genetics course, which was required under quarters but will not be required under semesters. During the transition period, if a student has already taken this course but wants to follow the new requirements, the course will count as an elective, even if this is at the expense of one of the required courses in the core areas of biodiversity or advanced evolution/ecology. Any course that fulfilled a requirement (e.g., in biodiversity) under the old rules will also do so under the new ones. The only remaining potential difficulty is the new requirement in the EE major for an advanced course in quantitative analysis. If a student who started under the old system wants to fulfill the new degree requirements but finds it too difficult to fit in a course in this category, we will waive this requirement.

Potential problems in transition can arise in fulfilling the BS requirements if a student is partway through a two- or three-quarter sequence (e.g., in chemistry or physics). For such cases, we are relying on the relevant departments to create needed transitional courses. We will, however, try to forestall difficulties for students through advising, by encouraging them to complete all such sequences either before, or after, the switch to semesters.

Fortunately, because EEOB does not offer any two-course sequences, we will not need to develop any bridge courses. The only problem that might arise concerns courses that currently have separate lecture and laboratory components, in which the lab can be taken subsequent to the lecture. Only two such courses currently exist, Ecology (EEOB 503.01 is the lecture and 503.02 the lab) and Organismal Diversity (EEOB 405.01 is the lecture, 405.02 is the lab). Under semesters, the laboratory in these courses (EEOB 4410 and 3320, respectively) will be a mandatory part of the course. This raises the possibility that a student will have had the lecture but not the lab when the transition to semesters occurs. We will strive through advising to make sure a student is not caught in this predicament, but, if it happens, we will insert the student into the appropriate lab using the individual studies option, or else waive the requirement.

# Course Listing and Curriculum Map for the Evolution and Ecology Major

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

Requirements	Semester Course Number	Course Title	Semester Units	Quarter Equivalent Course Number	Quarter Credits	Notes	Relevant Program Goals
<b>Biology</b>	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
<b>Math</b>	MATH 1151	Calculus 1	5	MATH 151,152	10	MATH 1156 also accepted	5
				MATH 148,150	10		
<b>General Chem</b>	CHEM 121,122,123	General Chem	10	CHEM 121,122,123	15	2 semesters of inorganic chemistry required for program	4
<b>Organic Chem</b>	CHEM 251	Organic Chem	4	CHEM 251,252	10	1 semester organic chem required for majors; preprofessional track advised to take 2 semesters	4
<b>Physics</b>	PHYSICS 1250 & 1251	General Physics	10	PHYSICS 11, 112 or 131, 132	10		4
<b>Statistics</b>	STAT 2450 or 2480	Intro Stats	3			Required as core course under majors	5

## Required core courses

	EEOB 3310 or 3310H	Evolution	4	EEOB 400H	5	Enhanced content	1*, 3*, 5*, 6*, 7*
	EEOB 3410 or 3410H	Ecology	4	EEOB 503.01 EEOB 503.02 EEOB 503.03	4 2 6	Combines the content of the independent lecture and lab courses	2*,3*,5*
	MOLGEN 4500	General Genetics	n/a	MOLGEN 500	5	Not required core in semesters; students will receive content in BIO 2401	
	BIO 2401	Integrated Biology	3			Will replace MOLGEN 500 requirement for majors	1*, 2*, 3*
	MATH or STATS	Advanced quantitative analysis course	3			Majors will receive additional quantitative skills training in semester system	5*

### Elective courses in Biodiversity (choose two)

	EEOB 2210	Ohio Plants	2		EEOB 210	5	7-week course, same content	1,2,3,4,6,7
	EEOB 2220	Ohio Birds	2		EEOB 322	5	7-week course, same content	1,2,3,4,6,7
	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 4210	E&E Vertebrates	2-4		EEOB 470	5	Same or enhanced content	1*,2*,3*,4*
	EEOB 4220	E&E Mammals	2-4		EEOB 625	5	Same or enhanced content	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	Same or enhanced content	1*,2*,3*,4*,7*

### Elective courses in Evolution and Ecology (choose two)

	EEOB 4410	Conserv Biol	3		EEOB 661	5	Same content	2*,5*,7*
	EEOB 4420	Trop Field Studies	2		EEOB 557H	3	Same 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, same 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)	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)	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)	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)	2**,3**,4**,5**

### Elective courses in EEOB that could count toward major (up to 10 semester units)

Requirements	Semester Course Number	Course Title	Semester Units	Quarter Equivalent Course Number	Quarter Credits	Notes	Relevant Program Goals
	EEOB 2210	Ohio Plants	2	EEOB 210	5	7-week course, same content	1,2,3,4,6,7
	EEOB 2220	Ohio Birds	2	EEOB 322	5	7-week course, same content	1,2,3,4,6,7
	EEOB 2250	Dyn Dinosaurs	1.5	EEOB 350	3	7-week course, same content	1,3
	EEOB 2510	Human Anatomy	3	EEOB 235	5	Same content	3,4
	EEOB 2520	Human Physiol	3	EEOB 232	5	Same content	1,3,6,7
	EEOB 3189	UG Field Work	1-3				
	EEOB 3191	UG Internship	1-3				
	EEOB 3193	UG Indiv Studies	1-3	EEOB 293	1-5		
	EEOB 3194	UG Group Studies	1-3	EEOB 294	1-5		
	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 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	2*,3*
	EEOB 3510	Cell Dev Biol	3	EEOB 415	4	Enhanced content	1,3*,7
	EEOB 3520	Micro Anatomy	1.5	EEOB 630	5	New course title (changed from Vertebrate Histology), same content as previous course	3**,4*,5*,6*,7**
	EEOB 3797	UG Foreign study		EEOB 697			
	EEOB 3798	UG Study Tour		EEOB 698			
	EEOB 3998	UG Research	1-12	EEOB 699			
	EEOB 3999	UG Thesis Res	1-5				
	EEOB 4210	E&E Vertebrates	2-4	EEOB 470	5	Same or enhanced content	1*,2*,3*,4*
	EEOB 4220	E&E Mammals	2-4	EEOB 625	5	Same or enhanced content	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	Same or enhanced content	1*,2*,3*,4*,7*
	EEOB 4410	Conserv Biol	3	EEOB 661	5	Same content	2*,5*,7*
	EEOB 4420	Trop Field Studies	2	EEOB 557H	3	Same content	2*,5*
	EEOB 4430	Ecol Methods I	1-2			New course	2*,3*,5
	EEOB 4510	Comp Vert Anat	3	EEOB 512	2	Same content	1*,3*,6*
	EEOB 4520	Comp Physiology	3	EEOB 410	4	New course title, enhanced content from previous course	2*,3*,5*
	EEOB 4520-H	Comp Physio - H	3	EEOB 410H	4	New course title, enhanced content from previous course	2*,3*,5*

	EEOB 4550	Neurobio Behavior	3		EEOB 632	3	New course title, enhanced content from previous course	3**,5*,6*
	EEOB 4560	Endocrinology	2		EEOB 550	3	Same content	1*,3**,4*
	EEOB 4910	Plants Tch SL	2		EEOB 511	3	Summer course at Stone Lab	1*,2*,3*
	EEOB 4920	Birds Tch SL	2		EEOB 522	3	Summer course at Stone Lab	1*,2*,3*
	EEOB 4930	Stream Eco Tch SL	2		EEOB 785	3	Summer course at Stone Lab	2*,3*
	EEOB 4950	Field Ecol SL	2		EEOB 513	3	Summer course at Stone Lab	2*,3*
	EEOB 5189	Field Work	1-4		EEOB 510 EEOB 513 EEOB 622 EEOB 651 EEOB 657	5 3 3 5 5	One course title to cover all of our field-oriented courses; emphasis to be announced with each offering	
	EEOB 5310	Adv Evolution	3		EEOB 673	5	New course title, same 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)	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)	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)	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)	2**,3**,4**,5**
	EEOB 5910	Herpetology SL	2		EEOB 622	3	Summer course at Stone Lab	1*,2*,3*
	EEOB 5920	Aquatic Plants SL	3		EEOB 611	5	Summer course at Stone Lab	1*,2*,3*
	EEOB 5930	Fish Biology SL	3		EEOB 621	5	Summer course at Stone Lab	1*,2*,3*
	EEOB 5940	Field Zoology SL	3		EEOB 651	5	Summer course at Stone Lab	1*,2*,3*
	EEOB 5950	Algae ID SL	0.5		EEOB 692	1-6	Summer course at Stone Lab	3*
	EEOB 5960	Plankton ID SL	0.5		EEOB 692	1-6	Summer course at Stone Lab	3*
	EEOB 5970	Larval Fish ID SL	0.5		EEOB 692	1-6	Summer course at Stone Lab	3*

## **Program learning goals:**

1. Students understand the processes that underlie evolution and be 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 Major Program (BS)

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 Major (do not count toward 30 hour major)

Courses	Hours
<input type="checkbox"/> Biology 1113 and 1114	8
<input type="checkbox"/> Chemistry 121, 122, 123, 251 and 252	21
<input type="checkbox"/> Mathematics 1151 or 1156	10
<input type="checkbox"/> Physics 1250 and 1251	10
<input type="checkbox"/> Statistics 2450 or 2480	3

### Part B. Core Requirements

<input type="checkbox"/> EEOB 3310	4
<input type="checkbox"/> EEOB 3410	4
<input type="checkbox"/> Biology 2401	4
<input type="checkbox"/> Advanced quantitative analysis (Math or Stats)	3

### Part C. Other Major Courses

1. Biodiversity Requirement. Two courses in organismal diversity are required. These courses must be chosen from the following list: EEOB 2210, 2220, 3320, 4210, 4220, 4230, 4240.
2. Evolution and Ecology Requirement. Two courses in evolution or ecology must be taken from among the following possibilities: EEOB 3420, 4410, 4420, 4430, 5310, 5410, 5420, 5430, 5450, 5460, 5470
3. Additional courses at the 2000 level or higher in EEOB or in other biological sciences or related areas must be taken to achieve at least 30 credit hours (if this total is not already achieved). EEOB 4998 or 4999 is especially encouraged.

TOTAL: 30 OR MORE HOURS AT THE 2000 LEVEL OR ABOVE (PARTS B and C)

A minimum grade of C- in each course and a 2.0 overall GPA in the major is required in parts B and C.

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

Professor Dave Stetson, [stetson.1@osu.edu](mailto:stetson.1@osu.edu), 614-292-5307

see also: <http://www.biosci.ohio-state.edu/~eeob/>

MINOR ALSO AVAILABLE (see page 35)

## Evolution and Ecology Major Sample Curriculum

### FRESHMAN YEAR

Autumn: Biological Sciences 100  
Math 1151  
Chemistry 121  
GE course  
Biology 1113  
Spring: Chemistry 122  
Math 1152  
Biology 1114  
GE course

### SOPHOMORE YEAR

Autumn: EEOB 3310  
Chemistry 251  
Physics 1250  
GE-Foreign Language  
BIO 2401  
Spring: EEOB 3410  
Chemistry 252  
Physics 1251  
GE-Foreign Language  
Elective

### JUNIOR YEAR

Autumn: Major courses  
Statistics 2450  
GE course  
Elective  
Spring: Major courses  
EEOB Independent Research  
GE course  
Elective

### SENIOR YEAR

Autumn: Major courses  
GE course  
Electives  
EEOB Independent Research  
Spring: Major Courses  
Elective  
GE course

Evolution and Ecology Major Program  
Bachelor of Science

Name \_\_\_\_\_

Semester of Graduation \_\_\_\_\_

**Required Supporting Courses**

**Biology (2 courses)**

- Biology 1113 or 1113H
- Biology 1114 or 1114H
- \_\_\_\_\_ Substitution
- Waived

**Mathematics (1 course)**

- Math 1151
- Math 1156
- \_\_\_\_\_ Substitution
- Waived

**Physics (2 courses)**

- Physics 1250 or 1250H
- Physics 1251 or 1251H
- \_\_\_\_\_ Substitution
- Waived

**Chemistry (2 courses)**

- [Chemistry 121](#)
- [Chemistry 123](#)
- \_\_\_\_\_ Substitution
- Waived

**Organic Chemistry (1 course)**

- [Chemistry 231 or Chemistry 251 & 252](#)
- \_\_\_\_\_ Substitution
- Waived

**Statistics (1 course)**

- Statistics 2450
- Statistics 2480
- \_\_\_\_\_ Substitution
- Waived

**Core Courses**

- EEOB 3310
- EEOB 3410
- Biology 2401
- Advanced course in math or stats
- \_\_\_\_\_ Substitution

**Biodiversity (any 2)**

- EEOB 2210
- EEOB 2220
- EEOB 3220
- EEOB 4210
- EEOB 4220
- EEOB 4230
- EEOB 4240

**Evolution and Ecology (any 2)**

- EEOB 3420
- EEOB 4410
- EEOB 4420
- EEOB 4430
- EEOB 5310
- EEOB 5410
- EEOB 5420
- EEOB 5430
- EEOB 5450
- EEOB 5460
- EEOB 5470

**Electives**

\_\_\_\_\_

\_\_\_\_\_

Core courses and electives must total at least 30 semester units.

Advisor (Printed)

Advisor (Signature)

Date

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Evolution and Ecology Major Program (BS)

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 Major (do not count toward 45 hour major)

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, 405.01, 503.01 or H503.01 and 503.02, 695	≥ 15
<input type="checkbox"/> Molecular Genetics 500 or 605 and 606	5-6
<input type="checkbox"/> Statistics 245 or Psychology 320 or Statistics 218 or Molecular Genetics 650	4-5

### Part C. Other Major Courses

1. Biodiversity Requirement. Two courses in organismal diversity are required. These courses must be from two of the following three categories: (a) vertebrates, (b) non-vertebrates, and (c) plants.
  - a. EEOB 322, 350, 621, 625, 626; Anthropology 300, 301, 304
  - b. EEOB 405.02, 647; Entomology 500, 612; Microbiology 521; Natural Resources 627
  - c. EEOB 210, 502, 611, 672; PCMB 300
2. Evolution and Ecology Requirement. One course in evolution or ecology must be taken from among the following possibilities: EEOB 370, 617, 651, 652, 653, 655, 656, 661, 671, 674, 700, 710, 720, 740; Entomology 621, 641; Molecular Genetics 640, 711; Natural Resources 322, 618, 710, 725; Anthropology 409, 411, 500, 610; Soil Science 682.
3. Additional courses in EEOB at the 200 level or higher (excluding EEOB 232 and 235) must be taken to achieve at least 40 credit hours (if this total is not already achieved). EEOB 699 (independent study) is especially encouraged.
4. An additional 5 credit hours at the 200 level or higher, for a total of 45 hours, can be taken either in EEOB or in another department (e.g., Geological Sciences, Natural Resources). If these last 5 hours come from outside EEOB, your advisor must approve the course

**With approval of your advisor, courses may be substituted for those listed as satisfying the diversity and evolution/ecology requirements.**

TOTAL: 45 OR MORE HOURS AT THE 200 LEVEL OR ABOVE (PARTS B and C)  
A minimum grade of C- in each course and a 2.0 overall GPA in the major is required.

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

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

# EEOB Evolution and Ecology Major (BS)

## Sample curricula for students at different stages of the transition

Graduating under quarters		Graduating 1 year after conversion		Graduating 2 years after conversion		Graduating 3 years after conversion		Graduating under semesters	
Biology Survey	1	Biology Survey	1	Biology Survey	1	Biology Survey	1	Biology Survey	1
Math 148 (algebra & trigonometry)	5	Math 148 (algebra & trigonometry)	5	Math 148 (algebra & trigonometry)	5	Math 148 (algebra & trigonometry)	5	Math XXXX (algebra & trigonometry)	3
GEC foreign language 101	5	GEC foreign language 101	5	GEC foreign language 101	5	GEC foreign language 101	5	Chem XXXX (chemistry 1)	5
GEC English 110	5 16	GEC English 110	5 16	GEC English 110	5 16	GEC English 110	5 16	GE English 110 successor	3
Math 150 (elementary functions)	5	Math 150 (elementary functions)	5	Math 150 (elementary functions)	5	Math 150 (elementary functions)	5	Biology 1113 (intro bio 1)	4 16
Chem 121 (chemistry 1)	5	Chem 121 (chemistry 1)	5	Chem 121 (chemistry 1)	5	Chem 121 (chemistry 1)	5	Math XXXX (elementary functions)	3
Biology 113 (intro bio 1)	5 15	Biology 113 (intro bio 1)	5 15	Biology 113 (intro bio 1)	5 15	Biology 113 (intro bio 1)	5 15	Chem XXXX (chemistry 2)	5
GEC writing (367 course)	5	GEC writing (367 course)	5	GEC writing (367 course)	5	GEC writing (367 course)	5	GE writing (367 course successor)	3
Chem 122 (chemistry 2)	5	Chem 122 (chemistry 2)	5	Chem 122 (chemistry 2)	5	Chem 122 (chemistry 2)	5	Biology 1114 (intro bio 2)	4 15
Biology 114 (intro bio 2)	5 15	Biology 114 (intro bio 2)	5 15	Biology 114 (intro bio 2)	5 15	Biology 114 (intro bio 2)	5 15		
						<b>Total quarter hours</b>	<b>46</b>		
						<b>Equivalent semester units</b>	<b>31</b>		
Chem 123 (chemistry 3)	5	Chem 123 (chemistry 3)	5	Chem 123 (chemistry 3)	5				
Math 151 (calculus 1)	5	Math 151 (calculus 1)	5	Math 151 (calculus 1)	5	Math 1151 (calculus 1)	5	Math 1151 (calculus 1)	5
EEOB 400 (intro evolution)	5 14	EEOB 400 (intro evolution)	5 14	Unrestricted elective	2	Chem 123T (transition course)	3	GE social science 1	3
Math 152 (calculus 2)	5	Math 152 (calculus 2)	5	EEOB 400 (intro evolution)	5 16	Biology 2401 (integrated biology)	3	Biology 2401 (integrated biology)	3
Chem 251 (organic chem 1)	4	Chem 251 (organic chem 1)	4	Math 152 (calculus 2)	5	Physics 1250 (physics 1)	5 16	Physics 1250 (physics 1)	5 16
Physics 111 (physics 1)	5	Physics 111 (physics 1)	5	Chem 251 (organic chem 1)	4	EEOB 3410 (intro ecology)	4	EEOB 3410 (intro ecology)	4
Unrestricted elective(s)	1 15	Unrestricted elective	1 15	Physics 111 (physics 1)	5 14	EEOB 3310 (intro evolution)	4	EEOB 3310 (intro evolution)	4
EEOB 503.01 (intro ecology lecture)	4	EEOB 503.01 (intro ecology lecture)	4	EEOB 503.01 (intro ecology lecture)	4	Chem XXXX (organic chem)	4	Chem XXXX (organic chem)	4
EEOB 503.02 (intro ecology lab)	2	EEOB 503.02 (intro ecology lab)	2	EEOB 503.02 (intro ecology lab)	2	Physics 1251 (physics 2)	5 17	Physics 1251 (physics 2)	5 17
Physics 112 (physics 2)	5	Physics 112 (physics 2)	5	Physics 112 (physics 2)	5				
Chem 252 (organic chem 2)	4 16	Chem 252 (organic chem 2)	4 16	Chem 252 (organic chem 2)	4 16				
				<b>Total quarter hours</b>	<b>92</b>				
				<b>Equivalent semester units</b>	<b>61</b>				
MolGen 500 (intro genetics)	5	MolGen 500 (intro genetics)	5	GE foreign language 1102.05	5	GE foreign language 1102.05	5	GE foreign language 1101	4
Statistics 245	5	Statistics 245	5	Statistics 2450	3	Statistics 2450	3	Statistics 2450	3
GEC foreign language 102	5 15	GEC foreign language 102	5 15	GE social science 2	3	GE social science 1	3	GE social science 2	3
GEC social science 1	5	EEOB 405.01 (intro biodiversity)	4	Unrestricted elective	2	Unrestricted elective	2	GE arts	3
EEOB 405.01 (intro biodiversity)	4	GEC social science 1	5	EEOB biodiversity course 1	2 15	EEOB biodiversity course 1	2 15	EEOB biodiversity course 1	2 15
Unrestricted elective	1	Unrestricted elective	1	GE foreign language 1103	4	GE foreign language 1103	4	GE foreign language 1102	4
GEC foreign language 103	5 15	GEC foreign language 103	5 15	GE historical study	3	GE historical study	3	GE historical study	3
GEC social science 2	5	GEC social science 2	5	GE arts	3	GE arts	3	Unrestricted elective	2
GEC historical study 1	5	GEC historical study 1	5	GE literature	3	GE literature	3	GE literature	3
GEC foreign language 104	5 15	GEC foreign language 104	5 15	EEOB biodiversity course 2	2 15	EEOB biodiversity course 2	2 15	EEOB biodiversity course 2	2 14
		<b>Total quarter hours</b>	<b>136</b>						
		<b>Equivalent semester units</b>	<b>91</b>						
EEOB evol/evo core course	5	EEOB biodiversity course 2	2	EEOB advanced evol/evo course 1	3	EEOB advanced evol/evo course 1	3	EEOB advanced evol/evo course 1	3
EEOB elective(s)	4	EEOB advanced evol/evo course 1	3	EEOB quantitative analysis	3	EEOB quantitative analysis	3	EEOB advanced evol/evo course 2	4
GEC arts & humanities 1	5 14	EEOB advanced evol/evo course 2	4	EEOB elective(s)	6	GE social science 2	3	GE foreign language 1103	4
EEOB diversity core course 2	5	GE literature	3	GE culture/historical study	3 15	GE culture/historical study	3	GE culture/historical study	3 14
GEC additional breadth 1	5	GE arts	3 15	EEOB advanced evol/evo course 2	4	GE open option 1	3 15	EEOB quantitative analysis	3
GEC arts & humanities 2	5 15	EEOB quantitative analysis	3	EEOB elective	2	EEOB advanced evol/evo course 2	4	EEOB elective(s)	3
EEOB diversity core course 1	3	EEOB elective(s)	5	GE open option 1	3	EEOB elective(s)	5	GE open option 1	5
EEOB Senior Seminar	3	GE open option 1	3	GE open option 2	3	GE open option 2	3 12	GE open option 2	3 14
GEC historical study 2	5	GE open option 2	3	Unrestricted elective(s)	3 15				
GEC additional breadth 2	5 16	Unrestricted elective	1 15						
						<b>Total hours/units</b>	<b>181</b>	<b>Total hours/units</b>	<b>121</b>