

## Term Information

Effective Term Spring 2017  
*Previous Value* Summer 2012

## Course Change Information

### What change is being proposed? (If more than one, what changes are being proposed?)

Change of credit hours from two to three.

### What is the rationale for the proposed change(s)?

The course was originally designed to be taught in 7 weeks a format of 2 lectures/week of 55 minutes plus 1 lab/week of 125 minutes. Student feedback made it clear that this format made it difficult to adequately learn important concepts as well as learn vital aspects of mammal anatomy such as the skull and dentition. In order to cover course material in adequate detail, we request that it be expanded to a full semester. With the same anticipated weekly schedule, this will total 2,520 minutes of formal instruction, exceeding the expectation for a 2 credit course. Both the expanded content and the increased time in formal instruction warrant changing the course to 3 credits.

### What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

No programmatic implications are anticipated.

Is approval of the request contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

## General Information

Course Bulletin Listing/Subject Area Evol, Ecology & Organismal Bio  
Fiscal Unit/Academic Org Evolution, Ecology & Org Bio - D0390  
College/Academic Group Arts and Sciences  
Level/Career Undergraduate  
Course Number/Catalog 4220  
Course Title Focused Study of Ecology and Evolution - Mammals  
Transcript Abbreviation E&E Mammals  
Course Description Mammals of the world, their natural history, distribution, taxonomy, and major anatomical and physiological adaptations; study of local species emphasized in lab.  
Semester Credit Hours/Units Fixed: 3  
*Previous Value* Fixed: 2

## Offering Information

Length Of Course 14 Week  
*Previous Value* 8 Week, 7 Week, 6 Week  
Flexibly Scheduled Course Never  
Does any section of this course have a distance education component? No  
Grading Basis Letter Grade  
Repeatable No  
Course Components Laboratory, Lecture  
Grade Roster Component Lecture  
Credit Available by Exam No

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Admission Condition Course	No
Off Campus	Never
Campus of Offering	Columbus

## Prerequisites and Exclusions

Prerequisites/Corequisites	Prereq: 3310
Exclusions	Not open to students with credit for 625.

## Cross-Listings

Cross-Listings

## Subject/CIP Code

Subject/CIP Code	26.0701
Subsidy Level	Baccalaureate Course
Intended Rank	Junior, Senior

## Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

## Course Details

Course goals or learning objectives/outcomes	<ul style="list-style-type: none"><li>• Students will understand mammals: their origin, evolution, zoogeography, and the adaptive radiation of mammalian taxa</li><li>• Students will be able to identify mammals of the world to family level, including their geographic distributions and key features</li><li>• Students will understand the key features of mammalian biology, including their reproductive biology, lactation, nutrition, energetics and nutritional physiology</li><li>• Students will gain the skills to identify to species Midwestern mammals using skins and skulls</li></ul>
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### [Previous Value](#)

Content Topic List	<ul style="list-style-type: none"><li>• Origin, evolution, zoogeography, and adaptive radiation of mammals</li><li>• Systematics and natural history of mammals</li><li>• Key features of mammalian biology, including reproductive biology, lactation, nutrition, energetics, nutritional physiology, flight and echolocation in bats, and cursorial locomotion</li><li>• Identification of midwestern mammals</li><li>• Experimental methods and data analysis</li></ul>
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**COURSE CHANGE REQUEST**  
4220 - Status: PENDING

Last Updated: Fink, Steven Scott  
08/31/2016

**Attachments**

- Syllabus.pdf: Syllabus  
*(Syllabus. Owner: Johnson, Norman F)*
- CarstensLetter.pdf: Letter from Instructor  
*(Other Supporting Documentation. Owner: Johnson, Norman F)*
- CoverLetter.pdf: Cover Letter  
*(Cover Letter. Owner: Johnson, Norman F)*

**Comments**

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Johnson, Norman F	08/31/2016 09:28 AM	Submitted for Approval
Approved	Johnson, Norman F	08/31/2016 09:29 AM	Unit Approval
Approved	Fink, Steven Scott	08/31/2016 10:01 AM	College Approval
Pending Approval	Nolen, Dawn Vankeerbergen, Bernadette Chantal Hanlin, Deborah Kay Jenkins, Mary Ellen Bigler Hogle, Danielle Nicole	08/31/2016 10:01 AM	ASCCAO Approval



31 Aug 2016

This submission is a request to expand the scope of EEOB 4220, Mammalogy, to a full-semester (14-week) course for 3 credit hours. As originally designed, the idea was to offer this material in an intensive 7-week format for 2 credits. Student feedback for such offerings showed that the time frame was not compatible with good learning and achievement of the course goals. An expansion to 14 weeks will allow time for students to better absorb and integrate course material. It will additionally allow the class to explore in greater detail topics of great interest (e.g., primate evolution).

The class has been taught as 2 lectures/week of 55 minutes and 1 lab/week of 125 minutes. The total time of structured instruction over a 14-week period would be 2,520 minutes. Therefore, both the expanded content and the time commitment are more appropriate to 3 credit hours.

I have included the syllabus from the last time the course was offered (in 2016), along with a letter from the instructor, Dr. Bryan Carstens, outlining his rationale for the request.

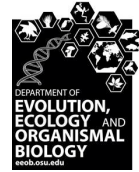
Sincerely,

A handwritten signature in black ink, appearing to read "Norman F. Johnson", with a long horizontal line extending to the right.

Norman F. Johnson  
Moser Chair in Arthropod Biosystematics & Biological Diversity  
Associate Chair, EEOB  
Chair, EEOB Curriculum Committee



Department of Evolution, Ecology and Organismal Biology  
318 W. 12th Avenue  
Columbus OH, 43210-1293  
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Bryan Carstens  
Associate Professor

[carstens.12@osu.edu](mailto:carstens.12@osu.edu)  
<http://carstenslab.org.ohio-state.edu/>

August 24th, 2016

**Re: Formal request to change EEOB 4220 to a 3 credit course.**

Dear Members of the curriculum committee,

Please consider this formal request to change EEOB 4220 to a 3 credit course.

*Background:* I have taught EEOB 4220 for three semesters. In SP2014 and SP2015, this course was offered as a 7-week intensive class (see attached syllabus). Student feedback in both semesters made it clear that this format made it difficult to adequately learn important concepts as well as learn vital aspects of mammal morphology such as the skull and dentition. In SP2016, the course was expanded to a full semester. While this dramatically improved the course (as well as the SEI evaluations), the course material was overly ambitious such that more content than required by a 2 credit course was included.

- 1. Rationale for the proposed change.* In order to best cover the subject matter, 3 credit hours are required such that both the diversity of Mammalia and the underlying theories associated with mammal ecology and evolution can be adequately covered. EEOB 4220 provides an important review of concepts developed in courses such as 3310, particularly as these concepts apply to mammals. Because humans are mammals, as are other model species, it is of great interest to students to cover topics such as primate evolution at a level of detail that can only occur when there is more time available.
- 2. Programmatic implications.* I do not anticipate that this change will have a negative effect on other EEOB courses.
- 3. Syllabus.* The syllabus for a 3 credit course (if approved) will closely match that of the SP2016 syllabus included in this request. Conversely, a 2 credit, semester long course will lack key elements.
- 4. Credit hour analysis.* In the spring of 2016, EEOB 4220 consisted of 2 lectures/week of 55 minutes, plus 1 lab/week of 125 minutes (2,520 minutes total). This exceeds the expectation of 1500 minutes for a 2 credit course.

In summary, in the spring of 2016 I taught a 2 credit semester-long course with content that exceeded the guideline for that of a 3 credit course. Rather than viewing this as an incredible educational bargain, many students during the SP2016 viewed The Ecology and Evolution of Mammals as a course with unreasonable expectations. By approving this change, the

current content will be more in line with OSU expectations for content. Without this approval, I will need to scale back the content covered by this course, likely by omitting the topics that were added when the course expanded to a full semester (see highlighted topics on SP2016 syllabus).

Thank you for considering this request.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Carstens". The signature is written in a cursive style with a horizontal line extending to the right.

Dr. Bryan Carstens

PS. Attached find a syllabus for each of the last three semesters that EEOB 4220 has been offered.

# EEOB 4220: Ecology and Evolution of Mammals – Spring 2016 – Dr. Bryan Carstens

## Spring 2016

**The Ecology and Evolution of Mammals:** Mammalogy is the study of mammals, a diverse clade of chordates with a broad range of adaptations to nearly every habitat. This course will focus on the ecology and evolution of mammalian species.

### Course Objectives

- Students will understand mammals; their origin, evolution, zoogeography, and the adaptive radiation of mammalian taxa.
- Students will be able to identify mammals of the world to the family level, including their geographic distributions and key features.
- Students will understand the key features of mammalian biology; including their reproductive biology, lactation, nutrition, energetics and nutritional physiology.
- Students will gain the skills to identify (to species) Midwestern mammals using skins and skulls through the use of a dichotomous key.

### Instructors

Dr. Bryan C. Carstens  
[carstens.12@osu.edu](mailto:carstens.12@osu.edu)

482 Aronoff Labs  
(614) 292-6587

### TAs:

**Matt Holding**  
[holding.5@osu.edu](mailto:holding.5@osu.edu)

**Naava Honer**  
[honer.4@osu.edu](mailto:honer.4@osu.edu)

### Meeting Time (Lecture)

Lecture Tues/Thurs 11:10 - 12:05 Cunz 150

Office hours Tues/Thurs 9:00 to 10:00 or by appointment

Open Lab Hours: Fridays 10:00 – 11:00 and 1:00 to 3:00 in 230 Jennings

▼ EEOB 4220 - Focused Study of Ecology and Evolution - Mammals						
Class	Section	Days & Times	Room	Instructor	Meeting Dates	Status
<a href="#">18710</a>	<a href="#">100-LEC</a> <a href="#">Regular</a>	TuTh 11:10AM - 12:05PM	Cunz Hall 150	Bryan Carstens	01/11/2016 - 04/25/2016	●
Class	Section	Days & Times	Room	Instructor	Meeting Dates	Status
<a href="#">18713</a>	<a href="#">110-LAB</a> <a href="#">Regular</a>	Tu 12:40PM - 2:45PM	Jennings Hall 230	Staff	01/11/2016 - 04/25/2016	●
Class	Section	Days & Times	Room	Instructor	Meeting Dates	Status
<a href="#">18712</a>	<a href="#">120-LAB</a> <a href="#">Regular</a>	Tu 8:00AM - 10:05AM	TBA	Staff	01/11/2016 - 04/25/2016	●
Class	Section	Days & Times	Room	Instructor	Meeting Dates	Status
<a href="#">18711</a>	<a href="#">130-LAB</a> <a href="#">Regular</a>	Th 12:40PM - 2:45PM	Jennings Hall 230	Staff	01/11/2016 - 04/25/2016	●
Class	Section	Days & Times	Room	Instructor	Meeting Dates	Status
<a href="#">26515</a>	<a href="#">140-LAB</a> <a href="#">Regular</a>	Th 4:10PM - 6:15PM	Jennings Hall 230	Staff	01/11/2016 - 04/25/2016	●

## **EEOB 4220: Ecology and Evolution of Mammals – Spring 2016 – Dr. Bryan Carstens**

### **Required Text**

Kurta (1995) *Mammals of the Great Lakes Region*. The University of Michigan Press, Ann Arbor, MI. (ISBN: 0-472-06497-5 ; 978-0-472-06497-7)

### **Suggested Text**

Feldhamer, Drickamer, Vessey, Merritt, Krajewski (2007) *Mammalogy: Adaptation, diversity, and ecology* (3rd Ed.). Johns Hopkins University Press, Baltimore, MD. (ISBN: 0-8018-8695-3; 978-0-8018-8695-9)

### **Required materials**

1 new note book, with at least 100 sheets. This must accompany student to all class and lab activities.

### **Grading:** The total grade has four components:

3 Lecture exams (15 % each)

Final exam (10%)

In class work (10%)

2 Lab practical exams (10 % each)

Lab activities (15%)

### **Accessibility**

Any student who has special needs because of a disability should make an appointment with Dr. Carstens as soon as possible in order to make arrangements for assistance. The Office for Disability Services will be asked to verify the need for special accommodations.

### **Statement on Diversity**

The instructors of this course are committed to promoting a welcoming climate for all students. We expect that all exchanges of ideas will be conducted with respect and collegiality. For more information, see [www.biosci.ohio-state.edu/~eeob/diversity](http://www.biosci.ohio-state.edu/~eeob/diversity) .

### **Class organization**

Lecture material will be presented using Video on Demand format (VoD). What this means is that I will post a Powerpoint along with my narration on YouTube at least one week before the topic is assigned (see **Schedule of Lecture & Lab Topics**, below). Students are required to watch the video, take notes on the material using their class notebook, and bring these notes to each class period. Class periods will be devoted to work in a small group format designed to supplement lecture materials. Activities will include answering and asking questions, reading papers from the primary literature, etc. Class notebooks will be examined to ensure that students are keeping up with the lecture activities, and students will earn points for these activities. There will be 25 activities in total, and students will be graded for 22 of these activities. Excused absences beyond the three allowed will only be granted in extreme circumstances.



### Schedule of Lecture & Lab Topics

Tue, Jan 12. *Introduction to Ecology and Evolution of Mammals.*

Thur, Jan 14. **History of Mammalogy.**

Lab topic. Introduction to lab / Mammalian Skulls.

Tue, Jan 19. *Phylogeny and diversity of Mammals.*

Thur, Jan 21. *Paper discussions (Meredith et al. 2011; Springer et al. 2003, 2004)*

Lab topic. Skull key practice / body key activity assigned. Mammalian teeth.

Tue, Jan 26. **Fossil Mammals & Monotremes**

Thur, Jan 28. *Biogeography of Mammals*

Lab topic. Carnivora.

Tue, Feb 2. *Metatherian mammals.*

Thur, Feb 4. **Primate Diversity.**

Lab topic. Didelphimorphia. Primates.

Tue, Feb 9. *Mammalian bodies.*

Thur, Feb 11. **Lecture Exam 1, covering all material to date.**

Lab topic.. Animal Diversity Web data collection. Review skulls and teeth

Tue, Feb 16. **Human evolution.**

Thur, Feb 18. *Social behavior & levels of selection.*

Lab topic.. **Lab Practical Exam**

Tue, Feb 23. *Carnivora.*

Thur, Feb 25. *Mammalian communication.*

Lab topic.. Rodentia.

Tue, Mar 1. *Reproduction & Mating systems.*

Thur, Mar 3. *Rodent diversity.*

Lab topic. Artiodactyla. Mammalian behavior / flight project introduced.

Tue, Mar 8. **Afrotheria & Xenartha.**

Thur, Mar 10. **Lecture Exam 2, covering all material to date (emphasis on lectures since last exam).**

Lab topic. Soricomorpha. Lagomorpha.

Tue, Mar 15. **No class – Spring Break.**

Thur, Mar 17. **No class – Spring Break.**

Tue, Mar 22. *Soricomorpha & "insectivores". Lagomorpha.*

Thur, Mar 24. *Environmental adaptation.*

Lab topic. Field trip to Waterman Farms / detection of wild mammals scavenger hunt. **Bonus points available here.**

Tue, Mar 29. *'Ungulate' diversity.*

Thur, Mar 31. **Marine mammals.**

Lab topic. Museum Collections – Meet at Museum of Biological Diversity.

**EEOB 4220: Ecology and Evolution of Mammals – Spring 2016 – Dr. Bryan Carstens**

Tue, Apr 5. *Modes of feeding.*

Thur, Apr 7. *Chiroptera & Dermoptera.*

Lab topic. Chiroptera / bat sonar / sign up for evening fieldwork with bat detector.

Tue, Apr 12. *Chiropteran Diversity.*

Thur, Apr 14. **Lecture Exam 3, covering all material to date (emphasis on lectures since last exam).**

Lab topic. Conservation of mammals / threats to Ohio bats.

Tue, Apr 19. *Population ecology of mammals.*

Thur, Apr 21. *Community ecology of mammals.*

Lab topic. **Lab Practical Exam.**

Mon, May 2. **Final Exam, covering all material to date.**

**Notes on the flipped classroom model.** EEOB 4220 will be conducted as a flipped classroom. Each class period will be devoted to group work that is intended to reinforce the contents of the lectures. Lectures will be presented via Video-on-Demand (VoD) format. Rather than standing in front of class and presenting a lecture using Powerpoint slides, I will record myself narrating this presentation and post this to YouTube. A link to these lectures is provided on the Carmen page. Students are responsible for (i) listening to the lecture prior to class, (ii) taking notes on this lecture using your notebook, and (iii) coming to class with both your notebook and any questions that came up during the lecture.

During the class period, the class will be divided into groups of 4 students. Each group will be given a worksheet, and spend 30 minutes completing the questions that it contains. These worksheets will then be exchanged with another group, and I will then go over the answers, clarify any questions, and the worksheets will be graded and turned in. In class participation points will be given to the group on the basis of your answers on the worksheet. Exam questions will be drawn largely from these worksheets.