

Term Information

Effective Term Spring 2018

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 2270
Course Title Parasites and Evolution: How worms, mosquitoes, etc. manage their/our world
Transcript Abbreviation ParasiteEvolution
Course Description Introduction to life history of and pathology caused by a number of parasites of invertebrates and vertebrates (including humans). Parasites and disease vectors are used to illustrate broad evolutionary and ecological concepts.
Semester Credit Hours/Units Fixed: 2

Offering Information

Length Of Course 14 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 Lecture
Grade Roster Component Lecture
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites 4 semester credit hours in Biological Sciences
Exclusions

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 26.1303
Subsidy Level Baccalaureate Course
Intended Rank Freshman, Sophomore

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

- Students will recognize the diversity of lineages that have evolved parasitism.
- Students will be able to describe the diversity of morphological adaptations in the main parasite groups.
- Students will be able to describe the diversity of life-history adaptations in the main parasite groups.
- Students will be able to explain the various ways parasites find, invade and manipulate their hosts.
- Students will be able to explain host behavioral, physiological and molecular defenses.
- Students will be able to coherently discuss the consequences of host-switching.
- Students will be able to coherently discuss the long-term evolutionary patterns in parasite-host associations.
- Students will describe the role of parasites in shaping human history.
- Students will be able to explain the basic principles of epidemiology in humans and domesticated animals.
- Students will be able to evaluate the negative and positive roles of specific parasites.
- Students will be able to discuss on a coherent, factual basis the possible consequences of climate change in terms of parasite-host associations.

Content Topic List

- What is a parasite?
- Distribution of parasitism across animal diversity.
- Morphological adaptations of parasites.
- Life history modifications of parasites.
- Parasite effects on the host.
- Host defenses.
- Genetic diversity and density-dependent selection.
- Molecular adaptation.
- Community ecology: parasites in healthy communities, parasites shaping communities.
- Long-term evolution: co-speciation, phylogeny.
- Host-switching.
- Evolution of virulence.
- Vectors.
- Epidemiology.
- Biogeography.
- Parasites and humans.
- Parasitic diseases.
- Parasites in a changing world.

Attachments

- Course_goals_objectives_assessments_parasitology.pdf: Learning objectives
(Other Supporting Documentation. Owner: Johnson,Norman F)
- ParasitologyProposalCurriculumMap.xlsx: Curriculum map
(Other Supporting Documentation. Owner: Johnson,Norman F)
- CLSE_Concurrence_Form_10-15-15.pdf: CLSE Concurrence
(Concurrence. Owner: Johnson,Norman F)
- Parasitology syllabus new.pdf: Syllabus
(Syllabus. Owner: Johnson,Norman F)
- Signed_Entomology_Concurrence_Form_10-15-15[2].pdf: Entomology Concurrence
(Concurrence. Owner: Johnson,Norman F)
- AnimalScience_Course concurrece request_ EEOB - Parasites and Evolution.pdf: Animal Science Concurrence
(Concurrence. Owner: Johnson,Norman F)
- ConcurrenceRequests.pdf: Concurrece requests
(List of Depts Concurrence Requested From. Owner: Johnson,Norman F)

Comments

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Johnson,Norman F	03/02/2017 03:17 PM	Submitted for Approval
Approved	Johnson,Norman F	03/02/2017 03:17 PM	Unit Approval
Approved	Haddad,Deborah Moore	03/02/2017 04:35 PM	College Approval
Pending Approval	Nolen,Dawn Vankeerbergen,Bernadette Chantal Hanlin,Deborah Kay Jenkins,Mary Ellen Bigler	03/02/2017 04:35 PM	ASCCAO Approval

EEOB 2270
PARASITES AND EVOLUTION:
HOW WORMS, MOSQUITOES, ETC. MANAGE THEIR/OUR WORLD
CREDIT HOURS: VARIABLE (2-3)

MEETING TIMES

Full semester 2 lectures / week, 55 minutes each

COURSE OBJECTIVES

Discuss a variety of parasites in the animal world, with the goal of increasing understanding of parasites and their role in natural communities as well as in human societies. Second, use parasite biology as a means to explain a variety of evolutionary principles and phenomena. The overall focus of the course is decidedly evolutionary.

INSTRUCTOR

Dr. Hans Klompen

Department of EEOB, 1380 Museum of Biological Diversity

Contact information: e-mail: klompen.1@osu.edu

GRADING

Quizzes based on 1) assigned reading; 2) topic/questions of current session; 3) topic/questions of recent sessions.

Message board. Students will be required to propose a follow-up question to material discussed in sessions or provide a possible answer to newly posed questions at least once a week. Questions and answers provided may be used in upcoming sessions.

A writing assignment (2-3 pages) dealing with a choice of a limited set of questions for a parasite of the students choosing. Topics have to be pre-approved.

COURSE MATERIALS:

Text (recommended, not required): Carl Zimmer, Parasite Rex, 198pp. New York, The Free Press (~ \$25). Available from University Bookstore.

READING

Most sessions will include readings from popular science magazines, newspaper science sections, blogs, etc. posted ahead of time.

TENTATIVE SCHEDULE

focus on topic, for course session titles will be more attractive

Session	Topic
1	Organization; what is a parasite?
2	Distribution of parasitism across animal diversity
3	Animal diversity and parasitism 2: origin parasitism
4	Morphological adaptations, worms
5	Morphological adaptations, arthropods
6	Life history modifications, worms
7	Life history modifications, arthropods
8	Parasite effects on the host 1, physiological modifications
9	Parasite effects on the host 2, behavioral modifications
10	Host defenses
11	The role of genetic diversity; density dependent selection
12	Molecular adaptation
13	Parasites in healthy communities
14	Community ecology: parasites shaping communities
15	Long-term evolution: co-speciation, phylogeny, tree thinking
16	Long-term evolution: deviations from co-speciation; host switching, extinction, and independent speciation
17	Host switching, local level
18	Evolution of virulence
19	Vectors, adding in a 3 rd factor
20	Exercise epidemiology
21	Biogeography, founder populations
22	Biogeography, founder populations
23	Parasites and humans: a brief history
24	Established parasitic diseases
25	Emerging parasitic diseases
26	Emerging vector borne diseases
27	So can we live without parasites? The positive side of parasites
28	Parasites in a changing world; effects of global warming
29	
30	

DISABILITIES STATEMENT:

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated, and should inform one of the course instructors as soon as possible of their needs. The Office for Disability Services is located in room 150 Pomerene Hall, 1760 Neil Avenue; 614-292-3307; TDD 292-0901; <http://www.ods.ohio-state.edu/> .

STUDENT CONDUCT:

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations or classroom. Instructors shall report all instances of alleged academic misconduct to the Committee on Academic Misconduct (Faculty Rule 335-5-487). For additional information, see the University's Code of Student Conduct (http://studentaffairs.osu.edu/resource_csc.asp).

STATEMENT OF DIVERSITY:

The instructor of this course is committed to promoting a welcoming climate for all students. For more information on diversity see the OSU website (<http://www.osu.edu/diversity/>). The instructors welcome suggestions, questions, and comments. Any exchange of ideas will be conducted with confidentiality, safety, and respect as guiding principles.

Learning or Course Goal	Learning Outcome or Objective (content/topic + behavior)	Formative Assessment (In class activity or homework)	Summative Assessment (exam question)	Program Goals (# & level)
What will students <u>learn</u> ?	If they have learned it, what will students <u>know</u> and be able to do?	What will students <u>do to learn it</u> ?	How will students <u>demonstrate they know it or are able to do it</u> ?	
To know the diversity of parasites	To recognize the diversity of lineages that have evolved parasitism Describe the diversity of morphological adaptations in the main parasite groups Describe the diversity of life-history adaptations in the main parasite groups	Read pre-lecture readings, attend lecture, participate in discussions	Through quizzes, participation on message board, and writing assignment	3 1 1
To describe and understand the basic interactions between parasites and their hosts	Explain the various ways parasites find, invade and manipulate their hosts Explain host defences at various scales (behavioral, physiological, molecular) Discuss in a coherent way the consequences of host switching Discuss long term evolutionary patterns in parasite host associations (phylogeny, biogeography)	Read pre-lecture readings, attend lecture, participate in discussions	Through quizzes, participation on message board, and writing assignment	2, 3 2, 3 (4) (4)
To appropriately link processes and patterns discussed in general associations to parasite human interactions	Understand the role of parasites in shaping human history	Read pre-lecture readings, attend lecture, participate in discussions	Through quizzes, participation on message board, and writing assignment	(6), 7
	Explain the basic principles of epidemiology in humans and domesticated animals	In-class exercise manipulation factors		5, 7
	Provide well corroborated evaluation of negative and positive roles of specific parasites			
	Discuss on a coherent, factual basis possible consequences of climate change in terms of parasite host associations			4, 7

Concurrence for EEOB 2270 – Parasites and Evolution – requested from

Entomology 22 Feb 2017

Animal Science 22 Feb 2017

Center for Life Sciences Education 22 Feb 2017