

Professors:

Ethan D. Clotfelter, LSB 229, x2252, edclotfelter@amherst.edu, office hours: Mondays 11:00-1:00
Michael E. Hood, LSB 325, x8538, mhood@amherst.edu, office hours: Tuesday 9:00-11:00
Julie A. Emerson, LSB 322, x8381, jemerson@amherst.edu, office hours: Wed/Fri 11:30-12:30
(also available by appointment)

Lecture: MWF 10-10:50 AM, Mead (Stirn) 115

4th hour: meets occasionally Tu 1:00-1:50 PM, Mead (Stirn) 115

Laboratory: Life Sciences Building 234, TuWThF 2:00-5:00 PM and Th 8:00-11:00 AM

Required readings: Sadava et al., *Life: The Science of Biology*, 8th edition (available at Amherst Books and The Option); occasional additional readings will be made available in class or electronically via the course e-reserves page. Electronic copies of the text are available through the publisher.

Course requirements and Grades: Two-thirds of your final grade will be based on the lecture component of the course and one-third based on the laboratory component. The lecture component includes three 50-minute, in-class exams and one final exam. Exams are not cumulative and will be weighted proportional to the number of lectures covered by each exam. Problem sets, designed to help you practice the more difficult concepts, will also be graded. The laboratory component of your grade will be determined by your performance on laboratory assessments, which include written reports and an exam. Laboratory assessments will not all carry the same weight - for example, the comprehensive animal lab practical exam will count about four times as heavily as the plant and fungi essay. Attendance in weekly laboratory sections is mandatory and grades will be negatively impacted by absences. Late lab assessments or problem sets will be subject to grade penalties that increase each day that they are late. Note: make-up assignments or exams will not be given unless there is approval from the Dean of Students Office.

Intellectual responsibility: Academic dishonesty will not be tolerated and will be reported to the Dean of Students. Make yourself aware of the College's *Statement of Intellectual Responsibility* (<http://www.amherst.edu/~dos/conduct/rightsrespon.html>). While you are permitted (and encouraged!) to discuss laboratory results and ideas with your lab instructors and other students, **written lab assessments** are to be the **original products** of each individual student's efforts. Except for joint assignments with your lab partner, no paper or electronic copies of lab reports should be shared between Biology 18 students, either current or previously-enrolled in the course. If you do obtain information from other sources (person, article, book, Web site, etc.), you **must** identify the source. Identical sentences or paraphrased paragraphs that are uncited will be taken as evidence of copying the work of others and handing it in as your own. Anyone found to have done this, or to have used outside sources of information during exams, will be reported to the Dean of Students and will receive a minimum penalty of an F on that assignment or exam.

Wk	Date		Lecture topics	Readings		Laboratory
1	Jan 25	M	Course mechanics; Why organismal biology?		MH/EC	Lab check in and lab safety
	27	W	History of evolution and ecology	Chapter 1	MH	
	29	F	Systems of inheritance	Chapter 10.1	MH	
2	Feb 1	M	Population genetics	Chapter 22.1	MH	Goldenrod-gall lab – week 1 (answer on-line questions before lab)
	3	W	Mechanisms of evolution	Chapter 22.2	MH	
	5	F	Species concepts	Chapter 23.1	MH	
3	8	M	Speciation, hybridization, and extinction	Chapter 23.2, 23.3	MH	Goldenrod-gall lab – week 2
	9	T	Review of population genetics/problem set		MH	
	10	W	Biodiversity and the extinction crisis	Chapter 57.1-57.3	EC	
	12	F	Conservation biology	Chapter 57.4	EC	
4	15	M	EXAM I – (Sunday review)		MH/EC	Goldenrod-gall lab - week 3 (meet in Webster 102 Computer Lab)
	17	W	Phylogeny and taxonomy	Chapter 25	MH	
	19	F	Phylogeny II	Chapters 26, 27	MH	
5	22	M	Guest lecturer: Harry Greene, Cornell University		HG	Microbial ecology of milk (answer on-line questions before lab)
	23	T	Review of phylogeny assignment		MH	
	24	W	Autotrophy: functional morphology - the small	Chapters 28, 29	MH	
	26	F	Autotrophy: functional morphology - the large	Chapters 28, 29	MH	
6	Mar 1	M	Symbiotic continuum of autotrophs	Sapp 2004	MH	Evolution and diversity of plants and fungi (answer on-line questions before lab)
	3	W	Fungi	Chapter 30	MH	
	5	F	Heterotrophy: how to find food		EC	
7	8	M	Heterotrophy: how to digest food	Chapter 50	EC	Comparative vertebrate morphology (answer on-line questions before lab)
	9	T	Review for Exam II		MH/EC	
	10	W	EXAM II			
	12	F	no class (Friday lab does meet)			
8	13-21		SPRING BREAK			
9	22	M	Heterotrophy: excretion, salt/water balance	Chapter 51	EC	Worms: parasitic vs. free-living lifestyles (answer on-line questions before lab)
	24	W	Challenges of life on land: movement	Chapter 47	EC	
	26	F	Evolution of nervous systems	Dunbar 2007	EC	
10	29	M	Evolution of sensory systems	Chapter 45	EC	Mollusks and arthropods (answer on-line questions before lab)
	30	T	Pre-lab discussion		TBA	
	31	W	Challenges of life on land: temperature regulation	Chapter 40	EC	
	Apr 2	F	Challenges of life on land: circulation and gas exchange	Chapters 48, 49	EC	
11	5	M	Why sex?	Lane 2009	MH	Vertebrate organ systems – week 1 (answer on-line questions before lab)
	6	T	Review for Exam III		EC/MH	
	7	W	EXAM III			
	9	F	Sex determination mechanisms in plants and animals	TBA	MH/EC	
12	12	M	Pollination biology	Fenster 2004	MH	Vertebrates organ systems – week 2 (answer on-line questions before lab)
	13	T	Pre-lab discussion		TBA	
	14	W	Sexual selection I	Ch. 22.3, Petrie 2x	EC	
	16	F	Guest lecturer: Patricia Brennan, Yale University		PB	
13	19	M	Sexual dimorphism and sex ratios	Hedrick 1989	EC	Lab practical exam (covers weeks 9-12 labs)
	21	W	Populations and life histories	Chapter 54	EC	
	23	F	Disease: strategies of pathogens	Poulin 1995	MH	
14	26	M	Disease: population dynamics	Levin 1999	MH	Cemetery demographics and life histories (answer on-line questions before lab)
	28	W	Disease ecology: when to specialize	Timms 1999	MH	
	30	F	Behavioral ecology	Chapter 53	EC	
15	May 3	M	Behavioral ecology: a case study	Ardia 2007	EC	Plant-pollinator coevolution
	5	W	Community ecology	Chapter 55	EC	
	7	F	Ecosystem ecology	Chapter 56	EC	

* There will be a review for the Final Exam (date TBA)