

BIOLOGY 432 EVOLUTIONARY BIOLOGY**Spring 2008**

Instructor: Craig L. Moyer
Email: cmoyer@hydro.biol.wvu.edu
Office Hours: MW, 1:00pm to 2:00pm & by appointment, BI 406

Class Meetings: **Lecture – MWF, 2:00pm till 3:20pm, BI 234**
 Recitation – W, 5:00pm - 6:30pm, BI 212 (NB: room change!)

Mandatory Texts:

Evolution; Douglas Futuyma, 2005 (Lecture Text)

Life As We Do Not Know It; Peter Ward, 2005 (Discussion Book)

Note: Updated information & reading assignments to be posted on the class web site:
<http://fire.biol.wvu.edu/cmoyer/cmoyer.courses.html>

Tentative Class Schedule: (As of 05/18/2008)

			<u>Text Readings</u>
Week 1	Apr 02W	Overview & Organizational	Chap 1 & 22
	04F	Darwinism and the Fact of Evolution	Chap 1
Week 2	07M	Tree of Life: Phylogeny ≠ Taxonomy	Chap 2
	09W	Tree of Life: Phylogeny ≠ Taxonomy	Chap 2
	09W	<i>Sign Up & Scheduling Presentations (later time)</i>	
	11F	Patterns of Evolution: Homoplasy = Bad	Chap 3
Week 3	14M	Patterns of Evolution: Homoplasy = Bad	Chap 3
	16W	The Fossil Record	Chap 4
	16W	<i>Discussion Group 1 (later time)</i>	
	18F	Origins of Life & Cambrian Explosion	Chap 5
Week 4	21M	Origins of Life & Cambrian Explosion	Chap 5
	23W	Guest Lecture: Ecology and Evolution at Loihi Vents	
	25F	No class meeting, work on topic outlines	
Week 5	28M	Molecular Evolution & Variation <i>(W.I. Term Paper Outline Deadline)</i>	Chap 8
	30W	Population Genetics & Drift	Chap 9 & 10
	30W	<i>Discussion Group 2 (later time)</i>	
May	02F	Population Genetics & Drift	Chap 9 & 10

Week 6	May 05M	Selection & Adaptation	Chaps 11 & 12
	07W	Midterm (Covers Chapters 1 to 5 & 8 to 10)	
	09 F	No class meeting, work on term paper drafts	
Week 7	12 M	No class meeting, work on term paper drafts	
	14W	Selection & Adaptation	Chaps 11 & 12
		<i>(W.I. Term Paper First Draft Hand In/Out for Review)</i>	
	14W	Discussion Group 3 (later time)	
	16F	Mechanisms of Speciation	Chap 15 & 16 (review Chap 6)
Week 8	19M	Mechanisms of Speciation	Chap 15 & 16
		<i>(Return W.I. Draft Reviews Deadline)</i>	
	21W	Discussion Group 4 (regular time)	
	21W	Discussion Group 5 (later time)	
	23F	Developmental Genetics	Chap 20
Week 9	28W	Macroevolution	Chap 21
		<i>(W.I. Term Paper Second Draft Deadline)</i>	
	28W	Discussion Group 6 (later time)	
	30F	Extinction Events	Chap 7
		<i>(Return W.I. Second Draft Reviews)</i>	
Week 10	Jun 02M	Sexual Selection & Human Evolution	Chap 14 (p.329-339)
	04W	Human Evolution	
	04W	Discussion Group 7 (later time)	
	06F	Finish Up & Review Session	
		<i>(Term Paper Final Draft Deadline for ALL)</i>	

Final Exam: Thursday, June 12th @ 3:30pm till 5:30pm

Course Evaluation and Grading:

Midterm Exam	150 points
Final Exam	200 points
Discussion Presentation	50 points
Participation	50 points
<u>Term Paper</u>	<u>50 points</u>
Total points possible:	500 points

Course Expectations:

Every student will be expected to undertake a project that will include leading a group discussion **AND** producing a **term paper** on a evolutionary biology related topic of interest agreed upon by student and instructor ahead of time. The “basic term paper” option is expected to have 5 - 7 pages with standardized references from primary scientific literature (no websites!). All writing assignments should be double spaced, with minimal spelling errors and using proper grammatical structure. Fonts should be size 12. Times New Roman font is preferred.

Those students who option to take this course as **writing intensive** will make special arrangements with the instructor to produce an expanded term paper. You will be expected to produce an outline and a minimum of two iterations of complete drafts. These will be returned with comments prior to gaining final approval of your term paper, so make sure to budget your time (and mine!) accordingly. This expanded term paper is expected to have 9 - 10 pages with standardized references. See suggested **target draft due dates** for when you should expect to be turning in your term paper for comments. In addition, *another* written summary based on a supplemental reading assignment from class is also **required**. This written summary will be ~2 pages in length. Finally, you will be expected to **critically examine and evaluate** another student’s “first draft term paper,” acting as their editor, then I will assess both your first draft and your editorial comments.

The **discussion presentation** will consist of: (1) Signing-up for a topic from the assigned chapter readings in *Life As We Do Not Know It*. We may also use papers from the primary scientific literature to fill out the available time slots as the basis for your presentation. These papers will be prearranged by the instructor so copies can be distributed to the class prior to your presentation. (2) Preparing a 15 minute oral presentation with an extra 5 to 10 minutes for discussions. (3) Presentation of figures and tables, to illustrate and outline your discussion. You should take advantage of the multimedia available in our classroom. Use of Powerpoint presentations are encouraged. We will facilitate three to four student presents per discussion period.

Course Objectives: The BIG Picture

This course aims to review critically the facts and theory of evolution. Students are exposed to case studies and current debates. The aim is to encourage students to integrate much of the factual information they have obtained from previous courses, and have them think critically about evolution. Students are encouraged to listen, think and discuss, rather than try to simply gain more facts for memorization and regurgitation. The course is organized to provide an overall synthesis and summary, and aims to provide a very different type of course in what is presumably the last year as an undergraduate.