

**BIOLOGY 432      EVOLUTIONARY BIOLOGY****Spring 2012**

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

**Class Meetings:**    **Lecture – MW, 2:00pm till 3:20pm, CF 227**  
                                   **Recitation – F, 2:00pm - 3:20pm, CF 227**

**Mandatory Texts:**

Evolution, Barton et al. 1<sup>st</sup> edition, 2007, Cold Spring Harbor Laboratory Press. (Lecture Text)

This text is accompanied by an open access website that contains additional materials:

<http://www.evolution-textbook.org>.

Your Inner Fish; Neil Shubin, 2008 (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 05/21/2012)**

			<u><b>Text Readings</b></u>
<b>Week 1</b>	Mar 28W	Overview & Organizational	Chap 1, 2 & 3
	30F	Darwinism and the Fact of Evolution <i>Sign Up &amp; Scheduling Presentations</i>	Chap 1, 2 & 3
<b>Week 2</b>	Apr 02M	Darwinism and the Fact of Evolution	Chap 1, 2 & 3
	04W	Tree of Life: Phylogeny ≠ Taxonomy	Chap 5 & 27
	06F	Tree of Life: Phylogeny ≠ Taxonomy <i>Turn in Title &amp; Topic paragraph for term papers</i>	Chap 5 & 27
<b>Week 3</b>	09M	Patterns of Evolution: Novelty	Chap 24
	11W	The Fossil Record	Chap 4
	13F	<i>Discussion Group 1</i>	
<b>Week 4</b>	16M	The Fossil Record	Chap 4
	18W	Origins of Life & Cambrian Explosion	Chap 8 & 10
	20F	<i>Discussion Group 2</i>	
<b>Week 5</b>	23M	Molecular Evolution & Variation <i>(W.I. Term Paper Outline Deadline)</i>	Chap 12 & 13
	25W	Molecular Evolution & Variation	Chap 12 & 13
	27F	<i>Discussion Group 3</i>	

<b>Week 6</b>	Apr 30M <b>Midterm</b>	
	May 02W Population Genetics & Drift	Chap 15 & 16
	04 F <i>Discussion Group 4</i>	
<b>Week 7</b>	07 M Population Genetics & Drift	Chap 15 & 16
	<i>(W.I. Term Paper First Draft Hand In/Out for Review)</i>	
	09W Selection & Adaptation	Chap 17 - 19
	11F <i>Discussion Group 5</i>	
<b>Week 8</b>	14M Selection & Adaptation	Chap 17 - 19
	<i>(Return W.I. Draft Reviews Deadline)</i>	
	16W Mechanisms of Speciation	Chap 22
	18F <i>Discussion Group 6</i>	
<b>Week 9</b>	21M Extinction Events	Chap 11
	23W Sexual Selection	Chap 20
	<i>(W.I. Term Paper Second Draft Deadline)</i>	
	25F <i>Discussion Group 7</i>	
	<i>(Return W.I. Second Draft Reviews)</i>	
<b>Week 10</b>	28M Memorial Day Holiday	
	30W Human Evolution	Chap 25 & 26
	Jun 01F Finish Up & Review Session	
	<i>(Term Paper Final Draft Deadline for ALL)</i>	

**Final Exam:** Thursday, June 7<sup>th</sup> @ 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 an 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 *Your Inner Fish*. 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.