BIO 28 – Macroevolution

Instructor: Kevin J. Peterson
Meeting time: 10A – Tuesday, Thursday 10-11:50 PM LSC 105; X hour 3:00-3:50
X-hours - Quizzes will be given in LSC 105; Literature Discussion will be held in LSC 133
Office Hours: By appointment
Readings: Journal articles (both Background reading and Xhr Discussion) will be uploaded to Blackboard, as will this syllabus and the PowerPoint presentations.

Bio 28 concerns itself with thinking about the evolutionary process in a different way, from the perspective of the species and through the lens of deep time. We do no really concern ourselves with the mechanisms of population genetics, as they operate at a different scale both spatially and temporally. Instead, what we are ultimately concerned with in this course is whether life is organized hierarchically, and if so, can selection occur at any/all of these other levels, in addition to the level of the organism. This course is especially well suited for discussion and question, as even the definition of macroevolution, and its very existence, is under intense discussion by both microevolutionists and macroevolutionists alike. So - **Ask Lots of Questions!** Most of the fun of this class is the discussions we have as a group, not the lecture material *per se*. Because this course will be asking you to think about Biology in a different way, its very important that if you don't understand something in class or get behind **Ask For Clarification!** And if you get behind please make an appointment to see me so you can get caught up.

Meeting		Topic
		What is Macroevolution?
1/07	Topic 1.	Charles Darwin, Adaptation, and Micro- vs. Macroevolution
		Agency
1/9	Topic 2.	Hierarchy Theory
1/15	Topic 3.	Punctuated Equilibrium
1/16	Xhr	Paper Discussion
1/17	Topic 3 cont'd.	
1/22	Topic 4.	Species Sorting and Selection
1/23	**Xhr**	**Quiz 1 (Topics 1-3)**
1/24	Topic 4 cont'd.	
1/29	Topic 5	The Origins of Macroevolution 1. Meiosis
1/30	Xhr	Paper Discussion
1/31	Topic 6	The Origins of Macroevolution 2. Macrophagy
2/05	Topic 6 cont'd	
2/06	**Xhr**	**Quiz 2 (Topics 4-6)**

Midterm over Topics 1-6 (take home) – 2/08 (Due 2/12 at the beginning of class)

		Efficacy
2/07	Topic 7.	Homology
2/12	Topic 7 cont'd	
2/13	Xhr	Paper Discussion
2/14	Topic 8	Constraints

2/19	Topic 8 cont'd.	
2/20	**Xhr**	**Quiz 3 (Topics 7-8)**
2/21	Topic 9.	Novelty and Exaptation
		Scope
2/26	Topic 10.	Biodiversity and Mass Extinctions
2/27-2/28	**NO CLASS**	
		The Cambrian Explosion
3/05	Topic 11.	The Origin of Animals
3/06	Xhr	Paper Discussion
3/07	Topic 12.	microRNAs and the Evolution of Complexity

Final over Topics 7-11 (take home) –– 3/8 (Due 3/11 5:00 PM)

There are two take home tests each worth 35% of your final grade. They are closed note/book, and are due at the times indicated above. Other rules/restrictions/guidelines will be discussed in class. There will be three quizzes given during Xhr that will cover material directly discussed in class (in contrast to the exams, which are more exploratory in nature and more "thoughtful" than the quizzes). Each quiz is worth 10% of your final grade. Other Xhrs will be used for paper discussions – the papers will be posted on Blackboard a week in advance. Attendance is mandatory, as is participation. Of course, the honor principle applies to all of your work. I encourage students with disabilities, including "invisible" disabilities like chronic diseases, learning disabilities, and psychiatric disabilities to discuss with me after class or during my office hours appropriate accommodations that might be helpful to them.