

# **BIODIVERSITY (BIEB 140)**

## **Tu/Th: 2 - 3:20 PM TATA 3201**

**\*Class Logistics and Policies - Please read carefully\***

**Academic integrity is taken very seriously at UCSD and in this class. Any student caught cheating will automatically receive a Failing Grade**

**You must attend the discussion section you are registered for. No credits if you attend a different section**

**Office hours for Professor Roy:**

**Thursday 10:30 – 11:30 AM – Hubbs Hall 4175 (at SIO) Or by appointment**

**Course expectations: This is an upper division EBE class that builds on the knowledge gained in the introductory and lower division EBE classes. Without such background, you are unlikely to do well in this class.**

**Lectures:** I highly recommend attending the lectures. This class has no textbook and so the lecture materials are the primary content and the focus of exams. Also, data show that, on average, students who attend the lectures tend to do better in this class. Lecture slides will be posted on TritonED before each lecture – you may want to download them prior to class to facilitate note taking. **Please remember to turn off cellphones at the beginning of the class.**

**Readings:** This class has no textbook but **everybody is expected to read and understand the scientific papers assigned to each lecture.** These papers were chosen to supplement the material that can be covered in a lecture. Required readings for individual lectures are in the “Readings” folder on TritonED either as pdf files or links to the journal article. You can use the links to either read the paper online or download a pdf. The copyright of each of these articles is with their respective publishers/authors. By downloading an article, you agree to limit the use of the pdf file to printing of single copies for personal study. You may not modify the files in any way, or to use them for commercial purposes.

**Guide to the Readings:** The assigned readings for this class are either review papers that provide a broad overview of a topic or primary research paper. In either case, you don't need to “memorize” all the details. What is important is to understand the general conclusions and the main points of the paper, not the details of methods or associated information. In other words, please focus on the big picture as it pertains to the lectures.

**Discussion Sections:** **The discussion sections in this class are designed around a peer-based active learning model** that will allow you to (i) become comfortable reading and understanding primary scientific literature and (ii) better understand the topics covered in lecture through group discussion.

Most of the discussion sections have assigned readings. Please see Lecture Schedule and Readings below for the assignments. The pdfs of all the papers are in the Readings for Lectures and Discussion folder on TritonED. **Each week you are expected to carefully read the paper assigned for that week and write a very brief summary answering the following:**

(i) what scientific questions(s) was the paper addressing [1 sentence]

(ii) what are the main conclusions of the paper [ 1 – 2 sentences]

**Hand in a hard copy of the summary (no e-mail or other electronic format) to your IA at the beginning of the discussion section. Make sure to put your name on the summary.**

Your IA will then lead a discussion of the paper using all the summaries. You are expected to participate in the discussion.

The second half of the discussion section will focus on the lecture material. For this you should come prepared to ask any questions you have. The IA will answer the questions and lead any subsequent discussion. **Unlike in some other classes, your IA will not do a lecture/presentation in the discussion section. So, in order to get most out of the discussion sections, please come with questions about the lectures that can be discussed.**

**The points for the discussion section are based on the summary, your participation in the discussions and attendance. If you come to a discussion section without a summary you can stay and participate but will not get any credit for that week.**

**Grading:** Midterm Exam = 40% Final Exam = 50% Discussion Sections = 10%

**Make up Policy:** There will be no make- up exams for his class. The only exceptions are in the case of documented illness or emergency.

## Lecture Schedule and Readings

### Week 1

---

April 2: Introduction, defining and measuring biodiversity  
*Reading: Costello et al. 2013*

April 4: Phylogenies and the tree of life  
*Readings: Gould 1992 & Omland 2014*

**Discussion: No assigned reading - meet your IA**

### Week 2

---

April 9: A very short geological history of biological diversity  
*Reading: Simpson & Kiessling 2010*

April 11: Early History of Animals  
*Readings: Fox 2016 & Droser & Gehling 2015*

**Discussion: Reading assignment - Gould 1992**

### Week 3

---

April 16: Invertebrates I  
*Readings: None*

April 18: Reefs, past, present and (?)future  
*Reading: Knowlton & Jackson 2013*

**Discussion: Reading assignment - Simpson & Kiessling 2010**

#### **Week 4**

---

April 23: Invertebrates II  
*Readings: Labandeira & Sepkoski 1993 & Brown 2001*

April 25: Plants  
*Reading: Enquist et al. 2001*

**Discussion: No Readings; review for Midterm; BRING QUESTIONS**

#### **Week 5**

---

April 30: MID-TERM EXAM (40%) **NO MAKE-UPS**

May 2: Fishes, Amphibians and Reptiles  
*Reading: Seehausen 2015*

**Discussion: Reading assignment - Enquist et al. 2001**

#### **Week 6**

---

May 7: Birds – the feathered dinosaurs  
*Reading: Xu et al. 2014*

May 9: The mammalian radiation  
*Reading: Jones & Safi 2011*

**Discussion: Reading assignment - Seehausen 2015**

#### **Week 7**

---

May 14: Deep Sea Biodiversity – the final frontier  
*Readings: Canganella & Kato 2014; Van Dover et al. 2002*

May 16: Biogeography & Macroecology  
*Readings: Gaston 1996; Gaston 2000*

**Discussion: Reading assignment - Xu et al. 2014**

#### **Week 8**

---

May 21: Global climate change & Biodiversity I  
*Readings: None*

May 23: Global climate change & Biodiversity II  
*Readings: Walther et al 2002; Moritz et al. 2008*

**Discussion: Reading assignment - Van Dover et al. 2002**

**Week 9**

---

May 28: Exploitation of Biodiversity and its consequences  
*Readings: Fenberg & Roy 2008; Pauly & Watson 2003*

May 30: Extinctions I  
*Reading: Jablonski 2008*

**Discussion: Reading assignment - Moritz et al. 2008**

**Week 10**

---

June 4: Extinctions II  
*Reading: Barnosky et al. 2011*

June 6: Why Biodiversity matters and the future  
*Reading: None*

**Discussion: No readings; review for the Final exam; BRING QUESTIONS**

---

June 11 - FINAL EXAM (50%) - **NO MAKE-UPS**