

# **SIO 187: Statistical Methods in Marine Biology**

## **Course Information**

**Fall Quarter 2014**

**Lecture/Lab: Tuesday-Thursday 3:30-4:45pm, Vaughan Hall 100 (SIO Campus)**

Please note: information in this syllabus is subject to change. Any schedule changes will be announced in class and posted on the TED web site. Make sure to frequently check the web site to keep updated about the weekly readings, assignments, and exam schedule.

### **Important dates**

11 Nov 2013

Mid-term exam

TBD

Final exam

### **Grading**

- Mid-term = 30%
- Lab Reports (2 due during the quarter) = 20%
- Lecture/Lab attendance & in-class quizzes = 20%
- Final exam = 30%

### **Textbook**

Whitlock & Schluter (2008) *The Analysis of Biological Data*, Roberts & Company Publishers.

### **Contact Information**

*Instructor:*

**Brice Semmens**, bsemmens@ucsd.edu

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*Teaching Assistant:*

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**Office Hours** Please see TED site for details.

### **Labs**

**Wednesdays or Fridays, 12:00-12:50pm, CENTR 315.** Attendance and completion of labs and associated assignments account for >20% of your final grade. Missing more than 4 labs results in a FAIL for the whole course. The labs will be a combination of problem solving, computer assignments, and projects. There will be some graded lab assignments that will count toward the final grade. After week one basic working knowledge of the JMP package is assumed.

### **Regrades**

If an error has been made in the grading of your exam, you may submit it to the instructor within *one week* of distribution for a regrade. The cut-off date for final exam regrades will be announced later in the quarter. Do not go to the TA for a regrade. **Your mid-term or final exam must first be submitted to the instructor with a written description of the grading error.** Regrade requests will not be processed without a written description of the grading error. **No regrades will be given for exams written in non-permanent ink.**

### **Missed exams (Mid-terms, Final)**

There are no make-up exams. If you must miss an exam, you will be required to provide official documentation of an unavoidable emergency (e.g. serious illness, etc.). Without such documentation, you will receive a failing grade for that exam. With valid documentation, the proportion of your grade that is based upon your other exams and graded assignments will be increased to cover the exam that was missed. A missed final exam cannot be taken at a later date. If you are able to provide official documentation of an unavoidable emergency, you will receive an incomplete for the course. You will then need to make arrangements to complete the course in the following year.

### **Excused absences Final Exam**

If you cannot be present in the classroom for an exam and can present a valid excuse (such as a note from your coach for a sporting event), then a sealed copy of the exam will be given to the coach, musical director, etc. who will administer the exam **at the class exam time. You must present the documentation at least 1 week in advance of the exam.** If no UCSD official can be found to administer the exam, then it will count as a missed exam. If the exam cannot be taken on the class exam day, then it will count as a missed exam. **No exam can be taken before or after the scheduled exam date.**

### **Cheating**

Students are expected to do their own work, as outlined in the UCSD Policy on Academic Integrity. Cheating will not be tolerated, and I will fail any student caught engaging in academic dishonesty. All exams will be closed-book and closed-notes, so all personal materials must be stowed under your seat. Students will be spaced in alternating seats. Only exams written in non-erasable pen will be considered for regrades. Because both exams are required for satisfactory completion of this course, any student caught cheating

on an exam will receive a failing grade for the course. He or she may also be suspended from UCSD.

### **TED**

The course materials will be made available over the course TED site via <https://ted.ucsd.edu/>. Your USERID and Password for your UCSD email account should work. However, if you are a recent transfer student or do not yet have a UCSD email account, we will need to issue you a password. The materials made available over TED are not a substitute for the lectures and labs. **If you do not attend lectures and labs, you are unlikely to pass the course.**

### **JMP**

As a student at UCSD, you do not need to purchase JMP to access the software, as long as you are connected to the Internet at UCSD. JMP can be accessed via <http://acms.ucsd.edu/students/VirtualLabsMain.html>. Please see the Website for instructions on accessing the software.

**SIO 187 – Spring 2013**  
**Course Schedule**

**Week 1:**

**Thurs. Oct. 2<sup>nd</sup>** – Introduction to course, learning objectives, grading. Introduction to statistics. Paper helicopter exercise.

LAB: None.

**Week 2: Reading: Chapters 1&2**

**Tues. Oct. 7<sup>th</sup>** – Graphics & describing data

**Thurs. Oct. 9<sup>th</sup>** – Describing Data

LAB: Stats on the computer, graphics

**Week 3: Reading: Chapters 3&4**

**Tues. Oct. 14<sup>th</sup>** – Describing data

**Thurs. Oct. 16<sup>th</sup>** – Estimation. In class exercise using standard error

LAB: Sampling

**Week 4: Reading: Chapters 5&6**

**Tues. Oct. 21<sup>st</sup>** - Probability

**Thurs. Oct. 23<sup>rd</sup>** – Hypothesis testing

LAB: Describing data and estimation

**Week 5: Reading: Chapters 7&8**

**Tues. Oct. 28<sup>th</sup>** - Proportions

**Thurs. Oct. 30<sup>th</sup>**–Fitting discrete models

LAB: Probability

**Week 6: Reading: Chapters 9&10**

**Nov. 4<sup>th</sup>** – Contingency analysis

**Nov. 6<sup>th</sup>** – The normal distribution

**LAB: Proportions and frequency analysis**

**Week 7: Reading: Chapters 11**

**Tues. Nov. 11<sup>th</sup>** – MIDTERM

**Thurs. Nov. 13<sup>th</sup>** – One sample inference

**LAB: Frequency models and contingency analysis**

**Week 8: Reading: Chapters 12&13**

**Tues. Nov. 18<sup>th</sup>** – Two-sample inference

**Thurs. Nov. 20<sup>th</sup>** – Violations of assumptions

**LAB: Normal distribution and means of numerical variables**

**Week 9: Reading: Chapters 15**

**Tues. Nov. 25<sup>th</sup>** – ANOVA

**Thurs. Nov. 27<sup>th</sup>** - THANKS GIVING BREAK

**LAB: Comparing two groups**

**Week 10: Reading: Chapters 16&17**

**Tues. Dec. 2<sup>nd</sup>** – Correlation

**Thurs. Dec. 4<sup>th</sup>**– Regression

**LAB: Associations between numerical variables**

**Monday – Saturday, December 8–13**– Final exams