

SIO 187: Statistical Methods in Marine Biology

Course Information

Winter Quarter 2018

Lecture: Tues/Thurs 2:30-3:50pm, Eckart Building 227

Discussion A01: Mon 11:00am-12:15pm, Eckart Building 225

Discussion A02: Wed 11:00am-12:15pm, Eckart Building 225

Final exam: Thurs 22 March 3:00-6:00pm, TBA

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

Important dates

1 February 2018	Mid-term exam I
22 February 2018	Mid-term exam II
22 March 2018	Final exam

Grading

- Mid-terms = 30% (total)
- Lab attendance & assignments = 40% (total)
- Final exam = 30%

Textbook

Whitlock & Schluter (2015) *The Analysis of Biological Data*, 2nd edition, Roberts & Company Publishers.

Contact Information

Instructor:

Stuart Sandin, ssandin@ucsd.edu
Scripps Institution of Oceanography
4150 Hubbs Hall

Teaching Assistants:

Beverly French, bfrench@ucsd.edu
Scripps Institution of Oceanography
3260 Hubbs Hall

Office Hours Please see TritonEd site for details.

Discussion sections

Discussion attendance accounts for 10% of your final grade. The sections will take place in a computer room and will be a combination of problem solving, computer assignments, and projects. The teaching assistant will be responsible for the labs. There will be some graded lab assignments that will count toward the final grade. After week one basic working knowledge of Microsoft Excel is assumed. It is your responsibility to spend the time and to make use of the online tools suggested by your instructors to learn Excel.

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. Do not go to a 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 will be increased to cover the exam that was missed. Not more than one of the mid-terms can be 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 UC San Diego 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 UC San Diego Policy on Academic Integrity. Cheating will not be tolerated, and we 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. Only exams written in non-erasable pen will be considered for regrades. He or she may also be suspended from UC San Diego.

TritonEd

The course will be using web learning through TritonEd – <https://triton.ucsd.edu/>. Your User ID and Password for your UC San Diego email account should work.

SIO 187 – Winter 2018
Course schedule

			<u>Readings</u>
<u>Week 1</u>			
9-Jan	Lecture 1	Overview; Data presentation and graphing	Chapter 1
11-Jan	Lecture 2	Intro to sampling and data types	Chapter 2
<u>Week 2</u>			
15-17 Jan	<i>Lab 1</i>	<i>Working with data Excel</i>	
16-Jan	Lecture 3	Summarizing data / descriptive statistics	Chapter 3
18-Jan	Lecture 4	Introduction to probability I	Chapters 4 & 5
<u>Week 3</u>			
Jan	<i>Lab 2</i>	<i>Generating & discussing data</i>	
23-Jan	Lecture 5	Introduction to probability II	Chapters 4 & 5
25-Jan	Lecture 6	Asking questions with data / Hypotheses	Chapter 6
<u>Week 4</u>			
Jan	<i>Lab 3</i>	<i>Null models and hypothesis testing</i>	
30-Jan	Lecture 7	Independence vs. dependence	
1-Feb	Lecture 8	MID-TERM I	
<u>Week 5</u>			
Feb	<i>Lab 4</i>	<i>Simulations & distributions</i>	
6-Feb	Lecture 9	Frequency data	Chapters 7 & 8
8-Feb	Lecture 10	Binomial (and other) distributions	Chapters 7 & 8
<u>Week 6</u>			
Feb	<i>Lab 5</i>	<i>Working with data I</i>	
13-Feb	Lecture 11	Contingency analysis	Chapter 9
15-Feb	Lecture 12	Continuous data & the normal distribution	Chapters 10 & 11
<u>Week 7</u>			
Feb	<i>Lab 6</i>	<i>Group project discussion</i>	
20-Feb	Lecture 13	What's bigger? Comparing means	Chapter 11 & 12
22-Feb	Lecture 14	MID-TERM II	
<u>Week 8</u>			
Feb	<i>Lab 7</i>	<i>Practical – sampling and statistics</i>	
27-Feb	Lecture 15	Data transformations	Chapter 13
1-Mar	Lecture 16	Bias and error in statistics	Chapter 14
<u>Week 9</u>			
Mar	<i>Lab 8</i>	<i>Group project presentations</i>	
6-Mar	Lecture 17	Are any different? Comparing many means	Chapter 15
8-Mar	Lecture 18	Post-hoc testing / Correlation	Chapters 14 & 16
<u>Week 10</u>			
Mar	<i>Lab 9</i>	<i>Working with data II</i>	
13-Mar	Lecture 19	Regression	Chapters 16 & 17
15-Mar	Lecture 20	Linear models	Chapter 18
<u>Week 11</u>			
22-Mar		FINAL EXAM	

