

SIO 127: Marine Molecular Ecology Spring 2014

**Lectures: TTh 9:30=10:50 Spiess 330
Discussion: Th 11:00 Spiess 330**

**Instructor: Ron Burton
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Office hours - by arrangement - please email to set up a time**

Course mechanics

Text: Molecular Ecology (2nd edition, 2011) Freeland, Kirk and Petersen.

Available electronically from the UCSD Library

Readings: Additional readings (research papers and review articles) will be along the way.

Assignments - there will be a few assignments along the way. These are designed to get you engaged in the material and allow me to make sure we are all on the same page. In addition to readings, I anticipate a 2-3 brief homework assignments (30-60 min), a one page paper and a 4 page paper.

Homework	30 pts
1 page paper	10 pts
4 page paper	60 pts
Midterm	100pts
Final	100pts

Discussion sections (optional) - after class Thurs

Yes, there is a TED Course Website - readings and lecture notes will be posted.

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Lecture and Exam Schedule

April 1	Lecture 1	Introduction to Molecular Ecology
April 3	Lecture 2	DNA Barcoding – promise and pitfalls
April 8	Lecture 3	Population genetics: drift and effective population size
April 10	Lecture 4	Migration and natural selection
April 15	Lecture 5	Genetic markers – allozymes, mtDNA, microsatellites
April 17	Lecture 6	Genetic markers – next-gen seq, SNPs, RAD-seq, RNA-seq
April 22	Lecture 7	Functional ecology: molecular adaptations at single loci
April 24	Lecture 8	Functional ecology: transcriptomics and regulatory variation
April 29	Lecture 9	Microbial ecology and metagenomics
May 1	Midterm	
May 6	Lecture 10	Population structure
May 8	Lecture 11	Cetacean population genetics (Guest Lecture: Phil Morin)
May 13	Lecture 12	Phylogeography
May 15	Lecture 13	Hybrid breakdown
May 20	Lecture 14	Speciation
May 22	Lecture 15	Natural Selection
May 27	Lecture 16	Mating systems (Guest Lecture: Felipe Barreto)
May 29	Lecture 17	Fisheries genetics
June 3	Lecture 18	Conservation genetics
June 5	General discussion and presentations	
June 10	Final (8:00-11:00 AM)	