SIO 127: Marine Molecular Ecology
Spring 2016

Lectures: TTh 9:30=10:50 Nierenberg Hall 101

Instructor: Ron Burton
Office: 2140 Hubbs Hall
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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 assigned along the way.

Assignments - there will be a couple of homework assignments 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, there will be a one page paper and a 4 page paper.

- **Homework assignments (including two 1 page papers) — 50 pts**
- **Midterm — 100pts**
- **Final — 100pts**

Discussion (occasional and optional): Th 11:00-11:50 Spiess 330

Yes, there is a TitonEd (formerly TED) Course Website – readings and lecture notes will be posted.

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Lecture and Exam Schedule

Mar 29	Lecture 1	Introduction to Molecular Ecology
Mar 31	Lecture 2	DNA Barcoding – promise and pitfalls
April 5	Lecture 3	Barcoding, Metabarcoding, Metagenomics
April 7	Lecture 4	Genetic markers – allozymes, mtDNA, microsatellites, next-gen seq, SNPs, RAD-seq, RNA-seq
April 12	Lecture 5	Population genetics 1: drift and effective population size
April 14	Lecture 6	Guest Lecture: Marine microbial ecology
April 19	Lecture 7	Population genetics 2: migration and natural selection
April 21	Lecture 8	Functional ecology: molecular adaptations at single loci
April 26	Lecture 9	Functional ecology: transcriptomics and regulatory variation
April 28		Midterm
May 3	Lecture 10	Population structure
May 5	Lecture 11	Phylogeography
May 10	Lecture 12	Natural Selection
May 12	Lecture 13	Hybrid breakdown
May 17	Lecture 14	Guest Lecture: Speciation
May 19	Lecture 15	Speciation 2
May 24	Lecture 16	Mating systems
May 26	Lecture 17	Fisheries genetics
May 31	Lecture 18	Conservation genetics
June 2	Lecture 19	Discussion
June 9	Final (8:30-11:00 AM)	