

Population Genetics and Evolution

Course outline (draft)

Fall 2012

Course No#: DIC 8024

Credits: Three (3hr per week)

Time: 09:30-12:30, Tuesday

Place: 2F Conference Room, Biodiversity Research Center (Yellow Building)

Organizer: Dr. Shou-Hsien Li

Lecturers:

Dr. John Wang

Dr. Ryuji Machida

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This is a graduate level course intended for PhD students to learn the fundamentals of population genetics and evolution. The course will be primarily discussion and based on the chapter and paper reading assignments; on most days, there will be no lectures. Students are expected to complete all reading assignments ahead of each class and be prepared for critical discussion.

At the end of the course, we hope that this course will help you develop as an independent scientist. Specifically, students will:

Learn how to critically read and evaluate scientific publications

Identify interesting research questions and propose experimental tests in the form of a grant

Grading/Evaluation of students:

- 30%, weekly written homework assignments
- 30%, class participation
- 15%, midterm: written critique and evaluation of a scientific manuscript
- 25%, final: grant proposal and reading committee evaluation

We will use the following textbook:

Population Genetics by Matthew B. Hamilton (Wiley-Blackwell, 2009)

DATE	WEEK	TENTATIVE TOPIC
9/11/2012	1.	Class organization/Introduction/Thinking like a population geneticist
9/18/2012	2.	Genotype frequencies
9/25/2012	3.	Genetic drift and effective population size
10/2/2012	4.	Genetic drift and effective population size

10/9/2012	5.	Population structure and gene flow
10/16/2012	6.	Population structure and gene flow
10/23/2012	7.	Mutation
10/30/2012	8.	Natural Selection
11/6/2012	9.	Natural Selection (midterm due)
11/13/2012	10.	Mol Evolution 1 (Daryi Wang)
11/20/2012	11.	Clades/Trees (Shu-Miaw Chaw)
11/27/2012	12.	Mol Evolution 2
12/4/2012	13.	Sexual selection
12/11/2012	14.	Evo-Devo (Jr-Kai Yu)
12/18/2012	15.	Speciation (Jun-Yi Leu)
12/25/2012	16.	Cooperation and conflict (final exam [grant proposal] due)
1/1/2013	17.	Coevolution (date shifted to 1/3)
1/8/2013	18.	Grant "reading committee": Should grant be funded?
~1/11/2013		Revision of grant due

12/4/2012 revised