

Population Genetics and Evolution

Course outline

Fall 2015

Course No#: DIC 8024

Credits: Three (3hr per week)

Time: 09:10-12:00, Tuesdays

Place: S604, GongGuan Campus, National Taiwan Normal University (week 1)
B204 (2F), Biodiversity Research Center, Academia Sinica (weeks 2~18)

Organizers: Prof. Shou-Hsien Li and Prof. Pei-Chun Liao

Lecturers: Dr. John Wang

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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:

Weeks 1-12:

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

Weeks 13-17:

Evolution 3rd Edition by Douglas J. Futuyma (Sinauer Associates, Inc, 2013)

DATE	WEEK	TENTATIVE TOPIC
9/15/2015	1	Class organization/Introduction/Thinking like a population geneticist
9/22/2015	2	Genotype frequencies
9/29/2015	3	Genetic drift and effective population size
10/6/2015	4	Genetic drift and effective population size
10/13/2015	5	Population structure and gene flow
10/20/2015	6	Population structure and gene flow
10/27/2015	7	Mutation
11/3/2015	8	Natural Selection
11/10/2015	9	Natural Selection (midterm due)
11/17/2015	10	Mol Evolution 1
11/24/2015	11	Mol Evolution 2
12/1/2015	12	Clades/Trees
12/8/2015	13	Sexual selection
12/15/2015	14	Cooperation and conflict
12/22/2015	15	Speciation
12/29/2015	16	Evo-Devo Final exam [grant proposal] due
1/5/2016	17	Coevolution
1/12/2015	18	Grant "reading committee": Should grant be funded?
~1/15/2015		Revision of grant due

08/2015 revised