

**GEORGIA INSTITUTE OF TECHNOLOGY
BIOLOGY 4802E/8802E FALL 2006 SYLLABUS
SPECIAL TOPICS: READINGS IN EVOLUTIONARY GENETICS**

Class: Monday 4:05 - 5:55, August 21 - December 16. Location: Cherry Emerson 322. 2.0 Credits

Instructors: Dr. Michael Goodisman and Dr. Soojin Yi; School of Biology.

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Office hours: By appointment.

Goals: This course is intended for graduate and advanced undergraduate students interested in the field of evolutionary genetics. The course will focus on readings from the primary literature, including classic papers and cutting-edge research articles. The goals of the course are: (1) To become familiar with current topics in evolutionary genetics. (2) To obtain an appreciation of the historical origins of modern evolutionary biology and genetics. (3) To gain skills in reading, discussing, and writing about scientific papers from the primary literature.

Class format: Class time will be spent on student presentations and discussions on topics in evolutionary genetics. Readings will include classic and contemporary papers drawn from the primary literature.

Attendance: You are allowed to miss one class without a formal excuse. Written confirmation of a legitimate excuse, such as a severe illness, will be required for any other absences. Your conduct in the course should conform to the Student Honor Code (<http://www.honor.gatech.edu/>).

Assessments: All students are required to do weekly readings, which will typically consist of two papers. Each student will turn in a one-page summary of the papers at the beginning of the class in which the papers are to be discussed. Each student will also make two 25 minute presentation to the class based on two of the papers. In addition, graduate students will write a minireview on one of the topics they present. Finally, a large component of the course grade will consist of class participation. The relative values of the assignments for undergraduate and graduate students are:

Assessment	Undergraduate Students		Graduate Students	
	Number	Value	Number	Value
Paper Summaries	13	35%	13	25%
Review Paper	N/A	N/A	1	25%
Class Presentation	2	35%	2	25%
Class Participation	13	30%	13	25%
Total		100%		100%

The most stringent scale used will be 90-100% an A, 80-89% a B, 70-79% a C, 60-69% a D, and 59% or less an F. This scale is subject to adjustment at our discretion.

Tentative Schedule: This syllabus is subject to change!

Week	Date	Topic	Classic Paper	Contemporary Paper
1	21-Aug	Introduction	N/A	N/A
2	28-Aug	Natural selection ¹	Darwin (1859)	Grant and Grant (2002)
3	4-Sep	No class	N/A	N/A
4	11-Sep	Adaptive evolution ²	Fisher and Ford (1947)	Enard et al (2002)
5	18-Sep	Speciation genetics ¹	Mayr (1947)	Wu and Ting (2004)
6	25-Sep	Mutation load ²	Muller (1950)	Keightley and Eyre-Walker (2000)
7	2-Oct	Balancing selection ^{1,2}	Allison (1954)	Huges and Nei (1988)
8	9-Oct	Molecular evolution ²	Kimura (1968)	Ohta (2002)
9	16-Oct	No class	N/A	N/A
10	23-Oct	Molecular clock ²	Gillespie (1991)	Kim et al (2006)
11	30-Oct	Human evolution ²	Cann et al (1987)	Ke et al (2001)
12	6-Nov	Genomics ²	Ohno (1970)	Lynch and Conery (2000)
13	13-Nov	Sex ratio ¹	Shaw and Mohler (1953)	Ellegren et al (1996)
14	20-Nov	Haldane's rule ¹	Haldane (1922)	Presgraves and Orr (1998)
15	27-Nov	Developmental genetics ¹	Garstang (1922)	Shubin et al (1997)
16	4-Dec	Behavioral genetics ¹	Hamilton (1964)	Krieger and Ross (2002)
17	11-Dec	Final exams	N/A	N/A

¹Dr. Goodisman or ²Dr. Yi will act as primary contact for these subjects.

Full Bibliography

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