

Tentative Syllabus:

BIOL A322 Population Genetics Spring 2003 - MWF 9:30-10:20



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Blackboard (Bb) Site: Access using your email username and Bb password. If you have not accessed Bb before, your password is your birth year and month (e.g. Jan. 1982 = 198201) which you will change upon logging in. **You are responsible** for checking the Bb site for lecture notes, important announcements, etc. **Inform me immediately** if you cannot access our Bb course site.
Textbook: Hartl, D.L. and A.G. Clark 1997. Principles of Population Genetics, 3rd ed., Sinauer
Solutions to chapter problems available on p. 487

Additional course readings under Course Materials on the Bb site or reserved at library circulation desk.

LECTURE	LECTURE TOPICS	TEXT REF.	PROBLEMS
1/13, 1/15 1/17	Introduction - Darwin, Mendel, Fisher, Wright Genetic variation and methods of measuring	1-15 20-21, 37-41, 43-68	1-1, 1-2, 1-9, 2-3, 2-7 to 2- 10, 2-13
1/20	KING BIRTHDAY HOLIDAY		
1/22, 1/24	Genetic variation and methods of measuring (cont'd)	20-21, 37-41, 43-68	
1/27, 1/29	Populations; Hardy-Weinberg equilibrium	71-92	1.12, 3-1 to 3- 4, 3-12, 3-13
1/31, 2/3, 2/5	Assortative mating and inbreeding	135-159	4-7, 4-8, 4-14, 4-15, 4-20 to 4-22
2/7, 2/10	Mutation	163-189	5-6 to 5-11
2/12	EXAM 1		
2/14, 2/17, 2/19	Genetic drift	267-274, 282- 289, 294-296	7-1, 7-2, 7-5, 7-10
2/21, 2/24, 2/26, 2/28	F-statistics	111-122, 128- 135, Hand- outs	4-2 to 4-4, 4- 10, 4-11
3/3, 3/5	MARDI GRAS HOLIDAY		
3/7, 3/10	Effective population size	289-293	5-16, 5-17, 7- 4, 7-6, 7-7, 7-8
3/12, 3/14, 3/17	Migration and the Wahlund Principle	189-199, 122- 128	5-18 to 5-21
3/19	EXAM 2		
3/21, 3/24, 3/26, 3/28	Natural selection, fitness, and the shifting balance theory	211-212, 218- 240, 252-255,	6-2 to 6-6, 6- 11 to 6-13, 6-

3/31, 4/2, 4/3, 4/7 4/9, 4/11	Molecular evolution and the neutral theory; genetic identities and distances	259-262 315-319, Handouts	19 TBA
4/14, 4/16, 4/18, 4/21	EASTER HOLIDAY		
4/23, 4/25	Conservation genetics		
4/28	EXAM 3		
4/30, 5/2, 5/5, 5/7	Oral Presentations - mandatory attendance	Choice of presenter	

GOALS AND OBJECTIVES OF THIS COURSE:

1. To understand population genetics as it combines observation with theory for the purpose of understanding genetic changes that occur within and among populations.
2. To explain the origin, maintenance and significance of genetic variation in populations.
3. To learn how to detect and measure genetic variation as influenced by particular mating systems.
4. To understand the evolutionary effects of mutation, migration, selection and small population size.



ATTENDANCE POLICY:

Because this course will involve group discussions, lecture material from sources other than the textbook, and take-home assignments handed out in class, I expect you to attend all of the class meetings. You are responsible for any and all material presented and announcements (e.g. deadlines for assignments; updates to the syllabus) made in class. Attendance will be taken daily in an effort for the instructor to familiarize himself with those students that regularly attend. ATTENDANCE MANDATORY FOR ORAL PRESENTATIONS (see below).



FINAL EXAM

MAY 10 (9:00-11:00 a.m.) - will be comprehensive

GUIDELINES FOR ORAL PRESENTATIONS

Each student will deliver an oral presentation. The topic of your presentation will be assigned. "Trading" of topics is allowable with approval of the instructor. Here are the guidelines to follow:



1. Each student will be given a topic on population genetics by the instructor.
2. The student will search through recent (1997-2003) peer-reviewed, research journal articles for an article dealing with the assigned topic.
3. The student must provide the instructor at least three potential articles by handing in a copy of the title page (including abstract) of each article. (DUE **March 26**) (20 pt)
4. The student, in consultation with the instructor, will select which of the three articles to present before **April 18** (5 pt). A "dry run" of the presentation with the instructor present is highly recommended.

5. Plan for a 15-min summary of the article including ~3 min or so for questions and discussion. If no questions are asked, the presenter should be prepared to generate discussion. Visual aids are recommended. PowerPoint will be available.
6. Before the presentation, the presenter will generate a one-page sheet for each student (and instructor) containing the following: presenter's name, article info (including title, author, source, and abstract or summary), and two potential exam questions (not the answers) on the presentation. Figures or other helpful information may be attached if desired.
7. Attendance to the oral presentations is mandatory.
8. The final exam will contain questions from the oral presentations.

GRADING:



IMPORTANT NOTICE! Missed exams or quizzes will result in an automatic "0" unless I have been contacted prior to or on the day of the exam or quiz and have determined that the reason for your absence warrants a make-up.

ALL DEADLINES ARE ABSOLUTE!! Assignments/papers received past the assigned deadline will receive a **LETTER GRADE DEDUCTION FOR EACH DAY PAST THE DEADLINE** (including Sat. & Sun.).

****I will adhere to the university policy on Integrity of Scholarship and Grades regarding cheating and plagiarism in this course. Please consult**

www.loyno.edu/undergraduate.bulletin/academicregs.html

Three exams @ 15%	45%
Final Comprehensive Exam	15%
Assignments	25%
Oral presentations	15%

Scale - A:100-90, B:89-80, C:79-68, D:67-55