

BISC 502a: Maintaining and transmitting genetic information Fall 2014 (8/24/14)

Description and enrollment This course is a **graduate** level survey of molecular biology and genetics focused on how information is stored and transmitted in the cell with particular emphasis on experimental methods and logic. This course is designed for graduate students in the molecular and computational biology PhD programs. Graduate students in related fields with a suitable background in biological sciences may also be admitted at the discretion of the faculty. This course assumes familiarity with molecular biology principles and methods. It is not appropriate for undergraduates or non-science students. ***This syllabus is subject to change!*** **When MW 2-4 pm RRI301**

Format and materials This course will be taught from the primary literature in a mixed format of lectures and journal clubs. Each module will include an exam, problem set, or other evaluation of that material (50 pts). Resources and review articles will be uploaded to Blackboard (blackboard.usc.edu). Background reading in any general Genetics, Cell Biology, or Molecular Biology textbook may be helpful.

Requirements All students are expected to attend lecture. Additional material will be provided on Blackboard (<http://blackboard.usc.edu>). Students are expected to monitor the Blackboard site for course announcements and new materials.

Instructors:

Norman Arnheim Professor arnheim@usc.edu
 Steven Finkel, Professor sfinkel@usc.edu
 Susan Forsburg Professor forsburg@usc.edu (Course director)
 Myron Goodman Professor mgoodman@usc.edu
 Sergey Nuzhdin Professor snuzhdin@usc.edu

Week	Date	Topic	Reading
1	25 August	Finkel:Genetics	Lecture 1: Mendelian Genetics. Reading Mendel, 1865; Reid & Ross, 2011.
	27 August		Lecture 2: Transmission Genetics
2	1 Sept	HOLIDAY	
	3 Sept		Lecture 3: Single Gene Traits/Pedigree Analysis
3	8 Sept		Lecture 4: Bacterial & Phage Genetics/Mobile Genetic Elements
	10 Sept		Lecture 5: Genetic Suppression
4	15	Forsburg: Cell cycle & Replication	Lecture 1: Cell cycle, S phase Labib et al, 2000
	17		Lecture 2: Cell cycle: checkpoints, damage. Lukas, 2003
5	22	Finkel exam	Midterm 1
	24		Lecture 3: Centromeres, epigenetics Yamagishi 2010
6	29		Lecture 4: meiosis, chromosome pairing, Dernberg TBA
	1 Oct	exam	
7	6 Oct	Nuzhdin Developmental Genetics	
	8		
8	13		
	15		
9	20		
	22	exam	

10	27	Goodman: Replication & Repair	
	29		
11	3 Nov		
	5		
12	19		
	12	<i>exam</i>	
13	17	Arnheim: Genomic Approaches	
	19		
14	24		
	26 Thanksgiving	HOLIDAY	
15	1 Dec		
	3 Dec		
	12 Dec Friday 2-4	<i>exam</i>	

Other Policies:

- Exam dates are firm. If a student misses an exam due to a true emergency (with an acceptable written excuse; written information concerning a death in the family must be provided), we MAY schedule a make-up exam, or at our discretion MAY permit the use of the average of other exams in determining the course grade. No one will be admitted to an exam after the first student has left the exam.
- Regrading of exams will be done only by the professor who wrote the question. Regrading can only be done within one week of the day the exam is initially returned to the class, and will only be considered for exams written in ink.
- No special assignments for extra credit are given.**
- Final exams will be kept in Dr. Forsburg's office for the required period.
- Academic integrity policies of the university will be strictly followed. Infractions can result in severe penalties. Students are expected to familiarize themselves with the USC standards for academic integrity, as described in the <http://www.usc.edu/student-affairs/SJACS/docs/GradIntegrity.pdf>.
- It may be necessary to make some adjustments in the syllabus during the semester. Students are responsible for monitoring materials on Blackboard.
- Disability:** Students requesting academic accommodations based on a disability are required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP when adequate documentation is filed. Please be sure the letter is delivered to Dr. Forsburg as early in the semester as possible. DSP is open Mon-Fri, 8:30-5:00. The office is in Student Union 301 and their phone number is 740-0776.