

<p style="text-align: center;">EEB 121: MOLECULAR BIOLOGY AND EVOLUTION SPRING 2007</p>

Instructor: Dr. Sorel Fitz-Gibbon
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Office: Room 5660, Geology BUILDING
Office Hours: FRI, 2:30 – 4:30 PM, *and by appointment*

Lecture: MWF 1:00 – 1:50, Room 1200B, Kinsey Pavilion

Discussion: 1A: MON, 2:00-2:50, Room 6704, Geology Building
1B: MON, 3:00-3:50, Room 6704, Geology Building
1C: WED, 2:00-2:50, Room 6704, Geology Building
1D: THU, 1:00-1:50, Room 1044, WG Young Building

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Course web page URL: <http://www.lsic.ucla.edu/classes/spring07/>

Required text:

Graur, D. and W.-H. Li. 2000. *Fundamentals of Molecular Evolution*, 2nd edition. Sinauer Associates, Sunderland, MA. 482 pp. ISBN: 0-87893-266-6

Attendance Policy: Absence is NOT the way to succeed in this class. The material is comprehensive, and you are expected to be present at all lectures and discussions. You must play an active role in learning; questioning the material and learning as you go.

Grading: There will be one midterm exam worth 30% of your grade and one final exam worth 70% of your grade. Attendance and participation in discussion sections may positively affect your grade.

Exams: These will be mostly short answer/essay, but may include multiple choice, true/false, and problem solving. The final exam, held during the assigned final exam period, will be similar to the midterm exam. Exams will cover material from lectures and readings, strongly emphasizing the material covered in lecture. Students with learning or physical disabilities or who require special arrangements for taking exams must prepare for this with the Office of Students with Disabilities in advance, and let me know at least one week prior to the exam to assure that appropriate arrangements can be made.

Missed exams: **THERE WILL BE NO MAKE-UP EXAMS.** Students who miss the midterm will be allowed to change the % weight of the final exam to 90%. The remaining 10% cannot be made up.

Policy on cheating: Cheating will absolutely not be tolerated in any form (e.g. copying from a classmate, plagiarism, changing answers on graded exams). Any case of cheating will be immediately turned over to the Dean of Students for disciplinary action.

TENTATIVE LECTURE SCHEDULE: MWF 1:00 – 1:50

DATE			TOPIC	READING*
APRIL	M	2	Introduction; what is molecular evolution?	
	W	4	Genes, Genetic Codes, and Mutation	Ch. 1
	F	6	Genes, Genetic Codes, and Mutation	Ch. 1
	M	9	Genes in Populations I	Ch. 2
	W	11	Genes in Populations II	Ch. 2
	F	13	Genes in Populations III	Ch. 2
	M	16	The Neutral Theory of Molecular Evolution	Ch. 2; PDF
	W	18	Evolutionary Change of Nucleotide Sequences	Ch. 3
	F	20	Patterns of Nucleotide Substitution	Ch. 4
	M	23	Rates of Nucleotide Substitution	Ch. 4
	W	25	MIDTERM	
	F	27	Natural Selection at the Molecular Level	Ch. 4; PDF
	M	30	The Molecular Clock hypothesis	Ch. 4
MAY	W	2	Homology, Sequence Alignment, and Evolutionary Trees	PDF
	F	4	Molecular Phylogenetics I	Ch. 5
	M	7	Molecular Phylogenetics II	Ch. 5
	W	9	Molecular Phylogenetics III	Ch. 5
	F	11	Gene Duplication	Ch. 6
	M	14	Exon shuffling and alternative splicing	Ch. 6
	W	16	Concerted Evolution	Ch. 6
	F	18	Transposons and Evolution	Ch. 7
	M	21	Genome Evolution I	Ch. 8; PDF
	W	23	Genome Evolution II	Ch. 8; PDF
	F	25	Genome Evolution III	Ch. 8; PDF
	M	28	Genome Evolution IV	Ch. 8; PDF
	W	30	Applications of Molecular Evolution	PDF

JUNE	F	1	Applications of Molecular Evolution	PDF
	M	4	Applications of Molecular Evolution	PDF
	W	6	Applications of Molecular Evolution	PDF
	F	8	TBD	
	M	11	FINAL EXAM: 6:30 – 9:30 PM	

* Graur and Li, *Fundamentals of Molecular Evolution*.

Some additional texts that you can look up for other explanations or background on evolution and molecular evolution, which are available at the BioMed Library:

Avise, J.C. 2004. *Molecular Markers, Natural History, and Evolution*, 2nd Ed. Sunderland, MA, Sinauer.

Freeman S. & Herron J.C. (2000) *Evolutionary Analysis*, 2nd Ed. New York, Prentice Hall.

Futuyma, D. J. 1998. *Evolutionary Biology*. 3rd Ed. Sunderland, MA, Sinauer.

Gillespie, J.H. 1998. *Population Genetics: A Concise Guide*. Johns Hopkins University Press, Baltimore.

Hall, B.G. *Phylogenetic Trees Made Easy*. Sunderland, MA, Sinauer.

Hartl, D. L. and A. G. Clark. 1997. *Principles of Population Genetics*. 3rd Ed. Sunderland, MA, Sinauer.

Li, W. H. 1997. *Molecular Evolution*. Sunderland, MA, Sinauer.

Nei, M. and S. Kumar. 2000. *Molecular Evolution and Phylogenetics*. New York, Oxford University Press.

Page, R.D.M. and E.C. Holmes. 1998. *Molecular Evolution: A Phylogenetic Approach*. Oxford, Blackwell Science.