How Molecules Evolve & Model Choice Bibliography:

Read for Lecture 1.

Simon, C., F. Frati, A. Beckenbach, B. Crespi, H. Liu, and P. Flook. 1994. Evolution, weighting, and phylogenetic utility of mitochondrial gene sequences and a compilation of conserved PCR primers. Annals Entomol. Soc. Am. 87: 651-701. [Read pages 651-666.]

General text's:

Yang, Z. 2006. *Computational Molecular Evolution*. Oxford University Press, Oxford, England. Book web site

Page, R.D.M. and E.C. Holmes. 1998. *Molecular Evolution, A phylogenetic approach.* Blackwell Science Ltd. Oxford, England.

Most molecular evolution books are not written from a phylogenetic perspective and the newest texts focus on whole genomes rather than nucleotide processes so the old reliable Chapter 1 of Wen-Hsiung Li's 1997. Text "Molecular Evolution" ttitled, "Gene structure, genetic codes, and mutation" is also a useful introduction to molecular evolution but the rest of the book is a it out of date now.

Other useful Readings:

Gruenheit, Nicole, Peter J. Lockhart, Mike Steel, and William Martin. 2008. Difficulties in testing for covarion-like properties of sequences under the confounding influence of changing proportions of variable sites. Molecular Biology & Evolution 25(7):1512-1520. (We will talk more about this when we discuss covarion evolution.)

Inagaki, Y., A.G.B. Simpson, J.B. Dacks, and A.J. Roger. 2004. Phylogenetic Artifacts Can be Caused by Leucine, Serine, and Arginine Codon Usage Heterogeneity: Dinoflagellate Plastid Origins as a Case Study. Syst. Biol. 53(4):582–593.

Lockhart, Peter J., Daniel Huson, Uwe Maier, Martin J. Fraunholz, Yves Van de Peer, Adrian C. Barbrook, Christopher J. Howe and Mike A. Steel. 2000. How molecules evolve in eubacteria. Letter to the Editor, MBE 17: 835-838. (We will talk more about this when we discuss covarion evolution.)

Simon, C., T.R. Buckley, F. Frati, J. Stewart, and A. Beckenbach. 2006. Incorporating molecular evolution into phylogenetic analysis, and a new compilation of conserved polymerase chain reaction primers for animal mitochondrial DNA. Annual Review of Ecology, Evolution, and Systematics. 37:545-579 + 45 pages of on-line supplement.

Model Choice:

Blanquart, S. and N. Lartillot. 2008. A Site- and Time-heterogeneous model of amino acid replacement. Mol. Biol. Evol. 25(5):842-858. (We will talk more about this when we discuss covarion evolution.)

Bossau, B. and Manolo Gouy. 2006. Efficient likelihood computations with non-reversible models of evolution. Syst. Biol. 55(5):756-768.

Evans, Jason, and Jack Sullivan. 2010. Approximating model probabilities in Bayesian information criterion and decision-Theoretic approaches to model selection in phylogenetics. Mol Biol Evol 28 (1): 343-349.

Kelchner, S.A. and M.A. Thomas. 2006. Model use in phylogenetics: nine key questions. Trends in Ecology and Evolutionary Biology (TREE) 22(2): 87-94.

Ripplinger, J. and J. Sullivan. 2010. Assessment of substitution model adequacy using frequentist and Bayesian methods. Molec. Biol. Evol. 27 (12): 2790-2803.

Sullivan, J. and P. Joyce. 2005. Model selection in phylogenetics. Annual Review of Ecology, Evolution and Systematics 36: 455-466.