Biotechnology (BINF 001)
April 14, 2006; 5/23/06rev (on-going)

Book: Molecular Biotechnology: Principles & Applications of Recombinant DNA, 3rd Edition
Author: Bernard R. Glick and Jack J. Pasternak
Book ISBN or Item Number: 1-55581-224-4
Publisher: ASM Press, 2003

15 classes: 12 lectures (@2.5hrs) and 3 exams (@2hrs)
Lecture 1.5 hr; Discussion 0.5 hr; Student oral presentation 0.5 hr.
Each student is required to give two 15 minute presentations.

Syllabus
Lecture/Topic/text pages covered

A. Fundamentals of Molecular Biotechnology
Lecture 1: Introduction and Review (Biol; Chem; Biochem). pp 1-21.
Lecture 2: Protein, nucleic acids, molec biol. pp 23-87.
Lecture 3: Chem syn, seq and amplif of DNA; Biochem and Biotech. pp 91-115.
Lecture 4: Recomb DNA; Gene expression, prokaryotes. pp 121-155.
Exam 1

Lecture 5: Heterologous protein prod in euk; Directed mutagenesis. pp 163-219.
B. Molecular Biotechnology of Microbial Systems
Lecture 6: Molecular diagnostics. pp 225-250.
Lecture 7: Therapeutic agents; vaccines. pp 256-335.
Lecture 8: Syn of commercial prods; Bioremediation. pp 340-412.
Exam 2

Lecture 9: Plant growth-promoting bacteria. pp 416-451.
Lecture 10: Microbial insecticides; Lg-scale prod of proteins. pp 455-506.
C. Eukaryotic Systems
Lecture 11: Genetic engineering of plants: Methods/Applications. pp 513-588.
Lecture 12: Transgenic animals and human molec genetics. pp 594-663.
Exam 3