

**BIOLOGY 3041: PLANT BIOLOGY AND GENETIC ENGINEERING
FALL 2008 LECTURE SCHEDULE**

Professor: Barbara Kunkel

Teaching Assistants: Jeanne Sheffield & Andrew Mutka

Tu, Th 10:00-11:30; 322 Rebstock Hall

<u>Lecture</u>	<u>Day</u>	<u>Date</u>	<u>Lecture Topic</u>
1	Th	Aug. 28	Course overview, requirements, class photos, Introduction to plant biology
2	Tu	Sep. 2	Introduction to plant biology and development
3	Th.	Sep. 4	Plant life cycle and reproduction
4	Tu.	Sep. 9	Plant Development I: embryogenesis and meristems
5	Th	Sep. 11	Plant Development II: pattern formation; shoots, leaves and roots
6	Tu	Sep. 16	Plant Development III: Transition to flowering; plant tissue culture, hormonal control of regeneration. Tissue culture demonstration.
7	Th	Sep. 18	Molecular genetics: Review of DNA basics, plasmids, gene structure & regulation
8	Tu	Sep. 23	Agrobacterium-mediated DNA transfer into plants: genetic engineering in nature
	Th	Sep. 25	Mid-term exam #1 (covering lectures 1-8)
9	Tu	Sep. 30	Plant Transformation I: <i>Agrobacterium tumefaciens</i> -based:
10	Th	Oct. 2	Plant Transformation II: Physical transformation, plastid transformation
11	Tu	Oct. 7	Cloning tissue-specific genes and promoters: T-DNA tagging, promoter trapping, etc.
12	Th	Oct. 9	cDNA synthesis, engineering recombinant genes
13	Tu	Oct. 14	Methods for monitoring transgene expression
14	Th	Oct. 16	Protein engineering at the codon level: engineering insect resistance using Bt toxin
15	Tu	Oct. 21	Developmental engineering I: flower color, sense suppression, & RNAi
16	Th	Oct. 23	Developmental engineering II: male sterility
	Tu	Oct. 28	Mid-term exam #2 (covering lectures 9-16)
17	Th	Oct. 30	Developmental engineering III: Ripening
18	Tu	Nov. 4	Biochemical engineering I: Amino acid metabolism, herbicide action and resistance
19	Th	Nov. 6	Biochemical engineering II: Carbon fixation, carbon source allocation, & manipulation of carbon storage in plants
20	Tu	Nov. 11	Biofuels: From starch to ethanol, cellulosic ethanol production, biodiesel, future challenges
21	Th	Nov. 13	Plant responses to microbial attack
22	Tu	Nov. 18	Engineering resistance to pathogens
23	Th	Nov. 20	Student Presentations
24	Tu	Nov. 25	Student Presentations
	Th	Nov. 27	Thanksgiving break
25	Tu	Dec. 2	Student Presentations
26	Th	Dec. 4	Student Presentations
	W	Dec. 17	FINAL EXAM: 6 – 8 pm (Exam Group XX)