2014 Syllabus: PlSc 452/552 Plant Biotechnology and Genetics (3) Genetic principles and techniques used in plant modification. Principles of molecular, and transmission quantitative genetics as applied to plant biotechnology. Prereq: Biology 111 and 112.

Tuesdays and Thursdays 8:10-9:25; Ellington Plant Sciences 128

Neal Stewart, 4-6487, 320 Plant Biotechnology (nealstewart@utk.edu)
Office hours 9:30-11:00 Tuesdays and Thursdays or by appointment.

Guest Lecturers: Hem Bhandari, Feng Chen, Denita Hadziabdic, Bob Trigiano; Teaching Assistant: Jonathan Willis

Text. Stewart, C.N., Jr. (Ed.) 2008. Plant Biotechnology and Genetics: Principles, Techniques and Applications, Wiley and Sons, Hoboken, New Jersey, 374 pp.

Lecture slides are online: http://plantsciences.utk.edu/pbg/

Grading: 10 point scale (e.g., A- = 90-91, A= 92-100), no curve. Each exam (2) = 32% (short answer format), Paper and presentation: 30%, class participation: 6%.

The paper will focus on an application of plant biotechnology in agriculture. It will take the form of a short scholarly article (1500 words) that is fully referenced. Students should use Trends in Plant Science format. Two drafts of the paper will be submitted. The first is due April 3 and will be "peer reviewed" and returned to "the editor" (Stewart) on April 8. The paper annotated by the peer reviewer and editor along with the "editor's decision" will be given to each author on April 15. The revised (and final) version will be due on April 22. Each student will make a 10-15 minute presentation about his or her paper—please use this opportunity to teach us about your topic. First and final drafts as well as the presentation will contribute to the paper grade.

Lecture numbers	Date	lecture	lecturer	reading
1	Jan 9	Introduction	Stewart	Ch 1
2	Jan 14	Mendelian genetics & plant repro	Trigiano	Ch 2
3	Jan 16	Breeding	Bhandari	Ch 3
4, 5	Jan 21 & 23	Plant development & physiology	Chen & Willis	Ch 4
6	Jan 28 & 30	Tissue culture	Stewart	Ch 5
7, 8	Feb 4 & 6	Molecular genetics	Stewart	Ch 6
9, 10	Feb 11 & 13	Recombinant DNA & vectors	Stewart	Ch 7
11, 12	Feb 18 & 20	Genes and traits of interest	Stewart	Ch 8
	Feb 25	**Midterm exam—through lectures 1-12**		
	Feb 27	Plant transformation guest speaker	Guest	Ch 10
13, 14	Mar 4 & 6	Plant transformation	Stewart	Ch 10
15, 16	Mar 11 & 13	Promoters and marker genes	Stewart	Ch 9
	Mar 18 & 20	***Spring break***		
17, 18	Mar 25 & 27	Analyses of transgenic plants	Stewart	Ch 11
19, 20	Apr 1 & 3	Regulations and biosafety	Stewart	Ch 12
21	Apr 8	Field testing and risks	Stewart	Ch 13
22	Apr 10	Intellectual property and controverisesrt		14 15
23	Apr 15	Synthetic biology & futures	Stewart	Ch 16 +
24	Apr 17& 22	Student presentations		
	Apr 24	Guest lecturer: Ted Klein, co-inventor of the gene gun		
8:00-10:00 am	May 6	**Comprehensive final exam**		

In enrolling in this class student promises to abide by the UT Honor Statement
"An essential feature of the University of Tennessee is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity."