2016 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 Thursdays or by appointment.

Text. Stewart, C.N., Jr. (Ed.) Plant Biotechnology and Genetics: Principles, Techniques and Applications, John Wiley and Sons, Hoboken, New Jersey, Second Edition via ecopy

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 the *Trends in Plant Science* journal format. Two drafts of the paper will be submitted. The first is due March 31 and will be "peer reviewed" and returned to "the editor" (Stewart) on April 5. The paper annotated by the peer reviewer and editor along with the "editor's decision" will be given to each author on April 12. The revised (and final) version will be due on April 26. Each student will make a 8 minute presentation about his or her paper—please use this opportunity to teach us about your topic and answer questions. First and final drafts as well as the presentation will contribute to the paper grade.

Lecture numbers	Date	lecture	lecturer	reading
1	Jan 14	Introduction	Stewart	Ch 1
2	Jan 19	Mendelian genetics & plant repro	Stewart	Ch 2
3	Jan 21	Breeding	Stewart	Ch 3
4	Jan 26	Plant development & physiology	Stewart	Ch 4
5	Jan 28 & Feb 2	Tissue culture	Stewart	Ch 5
6	Feb 4 & 9	Molecular genetics	Stewart	Ch 6
7	Feb 11	Systems biology & omics	Stewart	Ch 7
8	Feb 16 & 18	Recombinant DNA & vectors	Stewart	Ch 8
9	Feb 23	Genes and traits of interest	Stewart	Ch 9
10	Feb 25	Plant transformation I	Stewart	Ch 11
	Mar 1	**Midterm exam—through lectures 1-9**		
11	Mar 3 & 8	Plant transformation II	Stewart	Ch 11
12	Mar 10	Promoters and marker genes	Stewart & Guest	Ch 10
	Mar 22	Guest Lecture	Guest	
13	Mar 24 & 29	Analyses of transgenic plants	Stewart	Ch 12
14	Mar 31 & Apr 5	Regulations and biosafety	Stewart	Ch 13
15	Apr 7	Field testing and risks	Stewart	Ch 14
	Apr 12	Guest Lecture	David Songstad	
16	Apr 14	Intellectual property	Stewart	Ch 15
17	Apr 19	Controversies	Stewart	Ch 16
18	Apr 21	Synthetic biology & futures	Stewart	Ch 17
	Apr 26 & 28	Student presentations		
8:00-10:00 am	May	**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."