

**PRINCIPLES OF PLANT BREEDING  
AGRONOMY-HORTICULTURE 501  
SYLLABUS SPRING, 2015**

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Class	Day	Date	Topic	Presenter
1	W	1/21	Germplasm and variation	IG
2	F	1/23	Germplasm and variation	IG
3	M	1/26	Plant domestication and crop evolution	IG
4	W	1/28	Hardy-Weinberg Equilibrium	JN
5	F	1/30	Coefficient of inbreeding	JN
6	M	2/2	Process of inbreeding	JN
7	W	2/4	Genetic consequences of inbreeding	JN
8	F	2/6	Genetic consequences of inbreeding	JN
9	M	2/9	Modes of reproduction and gene dispersal, Part 1	IG
10	W	2/11	Modes of reproduction and gene dispersal, Part 2	IG
11	F	2/13	Incompatibility and Sterility, Part 1	IG
12	M	2/16	Incompatibility and Sterility, Part 2	IG
13	W	2/18	<b>Exam 1</b>	
14	F	2/20	The development of modern scientific plant breeding	IG
15	M	2/23	Transmission genetics in the practice of plant breeding	IG
16	W	2/25	Transmission genetics in the practice of plant breeding	IG
17	F	2/27	Linkage and recombination	IG
18	M	3/2	Linkage and recombination	IG
19	W	3/4	Quantitative inheritance	JN
20	F	3/6	Average effect of allelic substitution	JN
21	M	3/9	Selection Theory I	JN
22	W	3/11	Selection Theory II	JN
23	F	3/13	Heritability	JN
24	M	3/16	Heritability	JN
25	W	3/18	Mating Designs	JN
26	F	3/20	<b>Exam II</b>	
27	M	3/23	Polyploidy	IG
28	W	3/25	Polyploidy	IG
29	F	3/27	Intellectual Property Protection in Plant Breeding	WARF
	M	3/30	<i>Spring break</i>	
	W	4/1	<i>Spring break</i>	
	F	4/3	<i>Spring break</i>	
30	M	4/6	GxE interactions	JN
31	W	4/8	GxE interactions	JN
32	F	4/10	Wide area testing	IG

33	M	4/13	Backcross breeding procedures	JN
34	W	4/15	Backcross	JN
35	F	4/17	Pedigree selection	JN
36	M	4/20	Derivatives of pedigree selection IBC, SSD	JN
37	W	4/22	Recurrent Selection	JN
38	F	4/24	Exam III	
39	M	4/27	Recurrent Selection	JN
40	W	4/29	Heterosis	JN
41	F	5/1	Heterosis	JN
42	M	5/4	Breeding for pest resistance	IG
43	W	5/6	Discussion of position papers	IG/JN
44	F	5/8	Discussion of position papers	IG/JN
45			FINAL EXAM	

Book on reserve at Steenbock Library for reference

- *Essentials of Plant Breeding, Bernardo*

Additional books suggested for reference

- *Breeding Field Crops, Poehlman and Sleper*
- *Principles of Cultivar Development, Fehr*
- *Principles of Crop Improvement, Simmonds*
- *Principles of Plant Breeding, Allard*
- *Hybrid: History and Science of Plant Breeding, Kingsbury*

A selection of plant breeding-related journals

- *Crop Science*
- *Journal of the American Society for Horticultural Science*
- *Theoretical and Applied Genetics*
- *Euphytica*
- *Plant Breeding*
- *HortScience*

All course material will be posted on the learn@UW site for this course.

The course grade will be determined by three exams worth 20% each and a final exam worth 20%. The remaining 20% comes from a position paper that will be due on April 13<sup>th</sup> in class. Papers turned in later than class time on this date will receive lower letter grades for each day they are late. The position paper is to focus on stating, supporting, and defining a plant breeding position on a topic of your choice. We encourage you to discuss your paper topic with us before you write it. It is critical that the paper be a product of your own scholarship. Sources must be cited appropriately using a common format for all citations. We encourage you to use the format in the journal *Crop Science*. Any verbatim material used should be placed in quotation marks. We consider source information in the grading of the papers. The paper is to be no longer than 10 pages double-spaced, excluding references. Please bring one copy for each instructor in hard copy. Include a 200-word abstract with a title and name on cover page (this does not count in the 10 page total). Participation and attendance are encouraged and in fact most likely necessary for a complete understanding of the course material. If you need to miss class and want information on what you've missed, feel free to contact us via email or make an appointment to meet in person.

