

## SYLLABUS

### PLANT GENETICS, Agron527, SPRING 2012

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For class notes: <http://www.public.iastate.edu/~mbhattac/bhattacharyya/agron527.htm>

1/09 – 1/13	Topic I	Criticism of Mendel's work. Mendelian genetics to molecular biology.
1/6	<i>University Holiday</i>	
1/18 - 1/27	Topic II	Meiosis; physical crossing over and genetic recombination; genetic factors for crossing over; reverse breeding.
1/30 – 2/08	Topic III	Segregation in diploid and polyploids
2/10	<b>Exam I</b>	
2/13 - 2/29	Topic IV	Linkage: Linkage detection and estimation
3/2- 3/07	Topic V	Mapping: genetic mapping; molecular markers and molecular mapping and comparative mapping
3/09	<b>Midterm Exam</b>	
3/12 - 3/16	<i>Spring Break</i>	
3/19 - 3/28	Topic V	Mapping continues
3/30 - 4/20	Topic VI	Plant Reproductions: Male sterility: Classification and molecular basis of male sterility. Self-incompatibility: Classification; molecular basis of gametophytic and sporophytic self-incompatibility. Evolution of self-incompatibility.
4/23 -4/27	Topic VII	Polyploids, evolution and rapid genomic rearrangements and epigenetic changes following polyploidization.
5/3	<b>Final Exam</b> Thursday - 9:45 - 11:45 a.m.	

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#### Grading System:

10% First Exam; 25% Mid-term exam; 40% Final exam; 15% Class Project; 10% Homework

#### Class Project

- Choice of Topics: 1. Apomixes – (i) genetics or (ii) molecular basis; 2. Plant-pathogen interaction: (i) genetics or (ii) molecular basis; 3. Epigenetics: (i) genetics or (ii) molecular basis; 4. Plant transformation or transposons.
- Written part: No page limit (1 ½ spacing, font size 12, Times New Roman)
  - Review (as many pages) and summarize (one page) (10 points)
  - Peer reviewing (2 points)
- Peer review to be completed by **April 2**. (3 points)
- Deadline for submission of the review with one-page summary is **April 4** (by e-mail).
- 30 min oral presentation- 2<sup>nd</sup> week of April.

**Office Hour:** By appointments in Agronomy Hall G303.  
There will be general review sessions before each exam.  
Additional review classes if requested by the students.