

Course Syllabus
SOCR 720B – Advanced Plant Breeding Tools
Spring 2018 (2 Credits)

INSTRUCTOR

Dr. Scott Haley
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appointments by arrangement

MEETING TIME AND PLACE

11:00-11:50 AM – M, W, F
W-001 Plant Science Building
(until week 10, March 30)

COURSE PREREQUISITES

Plant Breeding (SOCR460, or equivalent); three credits in statistics.

TEXTBOOK

There is no required textbook for this course. Reference materials will be made available via CSU's online educational platform – Canvas (<http://canvas.colostate.edu>).

LEARNING OBJECTIVES

- The successful student will develop an appreciation of the basic strategies of plant breeding.
- The successful student will develop an understanding of field plot techniques and data analysis methods for field trials and genotype x environment (GxE) interaction in plant breeding programs.
- The successful student will develop an understanding of fundamental principles related to breeding for pest resistance, environmental stress tolerance, and end-use quality.
- The successful student will develop an understanding of basic strategies pertaining to molecular breeding approaches useful in applied crop improvement programs.
- The successful student will use classical and current literature to foster improved understanding of plant improvement and disciplines contributing to plant improvement.

EVALUATION

- One take home quiz and one final exam will be given during the semester. The quiz (50 points) will be relatively short and open book. The final (100 points) will be open-book and comprehensive. The quizzes and final exam will consist of predominantly short answer questions or problems.
- Each student will be required to give a presentation (including leading discussion) of one research paper or topic during the semester (50 points). Students not presenting or leading discussion that day will be required to write a one-page review/critique (10 points each) of the paper/topic being presented and discussed. Details on these activities will be provided.
- Four homework assignments will be given during the semester, each worth 20 points.
- Final assignment of grades will be according to a 90% A, 80% B, 70% C, 60% D, and <60% F scale that will be calculated from the following activities:

Take home quizzes (1)	= 50 points
Final exam (1)	= 100 points
Student presentation (1)	= 50 points
Paper review/critique (9)	= 90 points
Homework assignments (3)	= 60 points
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Total	= 350 points

Course Outline
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Week	Dates	Topic
1	Jan 17, 19	Plant Breeding Perspectives and Fundamentals
2	Jan 22, 24, 26	Field Plot Techniques
3	Jan 29, 31, Feb 2	Field Plot Techniques
4	Feb 5, 7, 9	Genotype x Environment (GxE) Interaction
5	Feb 12, 14, 16	Genotype x Environment (GxE) Interaction
6	Feb 19, 21, 23	Breeding for Pest Resistance
7	Feb 26, 28, Mar 2	Breeding for Environmental Stress Tolerance
8	Mar 5, 7, 9	Breeding for End-Use Quality
9	Mar 19, 21, 23	Molecular Breeding Tools
10	Mar 26, 28, 30	Molecular Breeding Tools
11	Apr 2-6	Final Exam

Academic Honesty and Integrity

The principles and practices of academic honesty and integrity will apply to all components of this course.

Academic Integrity – “The foundation of a university is truth and knowledge, each of which relies in a fundamental manner upon academic integrity and is diminished significantly by academic dishonesty. Academic integrity is conceptualized as doing and taking credit for one’s own work. A pervasive attitude promoting academic integrity enhances the sense of community and adds value to the educational process. All within the University are responsible for and affected by the cooperative commitment to academic integrity.” (from CSU Catalog)

This course will adhere to CU’s Academic Integrity Policy as explained at <http://www.conflictresolution.colostate.edu/academic-integrity> and links from that page, and the Student Conduct Code, Article III, <http://www.conflictresolution.colostate.edu/conduct-code>.

Plagiarism is “the practice of taking someone else’s work or ideas and passing them off as one’s own. ... If it is important to use the actual words of another author, they should be put in quotation marks and be clearly referenced.” (Day et al., 2012. Biosystems Engineering 111:1)

Some links to information on academic integrity and plagiarism are as follows:

Practicing Academic Integrity: <http://learning.colostate.edu/integrity/index.cfm>

Ways to Avoid Plagiarism: http://learning.colostate.edu/integrity/ways_to_avoid.cfm

Writing Guide: Understanding Plagiarism:
<http://writing.colostate.edu/guides/researchsources/understandingplagiarism/index.cfm>