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Advanced Plant Molecular Genetics - Course Syllabus

Course Number: PS303

Course Title: Advanced Plant Molecular Genetics

Academic Semester: Spring **Academic Year:** 2015/ 2016
Semester Start Date: Jan 24, 2016 **Semester End Date:** May 19, 2016

Class Schedule: Sundays/ Wednesdays (1:00-2:30 PM)

Classroom Number:

Instructor(s) Name(s): Magdy M. Mahfouz
Email: magdy.mahfouz@kaust.edu.sa

Office Location: Building #2, Office 3232

COURSE DESCRIPTION FROM PROGRAM GUIDE

New concepts and developments in molecular genetics and genomics will be covered.

COMPREHENSIVE COURSE DESCRIPTION

PS303 course will cover advanced topics in the key biological processes of plants in a molecular, genetics, and genomics context. The course will provide a broad coverage of the current concepts and techniques of plant molecular genetics and genomics and their application to crop productivity and improvement. Special emphasis will be placed on recent publications in the research of these topics involving gene regulation, plant growth and development, abiotic stress, hormones, nutrition, and epigenetics.

GOALS AND OBJECTIVES

Students will be able to describe current concepts in advanced plant molecular genetics and genomics and explain the genetics and molecular basis underlying plant growth, reproduction, development, nutrition, cell signaling, abiotic stress adaptation. Students will be able to develop critical thinking, analysis and evaluation skills in applying knowledge in the class to solve real research questions. Students will be able to develop skills and expertise in researching literature as well as reading, writing and evaluating research publications. This course will also cover the understanding and appreciation of the connections of plant molecular genetics and genomics to society.

REQUIRED KNOWLEDGE

Prerequisites: B209 Molecular Genetics, or instructor approval.

REFERENCE TEXTS

Students will be provided with a list of selected recent research papers and reviews to cover the topics in PS303 course. Students are encouraged to refer to Biochemistry and Molecular Biology of Plants, 2nd Edition, textbook to enrich their background in multiple topics.

METHOD OF EVALUATION

Percentages /Points	Graded content
300 points 200 points 200 points 300 points Total 1000 points	Student evaluation: Class Presentations Weekly Paper Critiques, Reviews, Discussions Writing assignments Research Proposal (Final Exam)

COURSE REQUIREMENTS

Assignments

Students will be required to read the weekly assigned research papers, select and present research papers, participate in group discussions, and write NSF/NIH- style research grant research proposal.

Course Policies

Class presence and participation are required for the PS303 course. Students are encouraged to actively participate in the discussion of research papers. Participation in class discussions is very important part of the learning process in the PS303 course. Students are evaluated on the quality of their contributions and insights. Quality comments offer different perspectives and move the discussion and analysis forward.

Additional Information

NOTE

The instructor reserves the right to make changes to this syllabus as necessary.

