Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
Submit original form and 2 copies. Attach a course syllabus to each.

1. This request is submitted by the Department of **Soil and Crop Sciences**

2. Course prefix, number and complete title **AGRO 671** Plant Growth and Development

3. Course description (not more than 50 words) **The course is a comprehensive analysis of plant development primarily focused on the molecular and cellular processes underlying morphogenesis, vegetative growth and reproduction. The role of the major phytohormones as coordinators of development will be analyzed. Plastic developmental responses to conditioning environmental signals will also be considered.**

4. Prerequisite(s) **MEPS 601 or approval of instructor** Cross-listed with **MEPS 671**

5. Is this a variable credit course? ☐ Yes ☑ No If yes, from _____ to _____.

6. Is this a repeatable course? ☐ Yes ☑ No If yes, this course may be taken _____ times. Will the course be repeated within the same semester/term? ☐ Yes ☑ No

7. Has this course been taught as a 489/689? ☐ Yes ☑ No If yes, how many times? __3__ Indicate the number of students enrolled for each academic period it was taught. **Spring 2005-5, Fall 2006-8, Fall 2007-5**

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)

   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

M.S., Ph.D. in AGRO, HORT, PLBR, MEPS.

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

10. Prefix **AGRO**
    Course # **671**
    Title (exclude punctuation) **Plant Growth & Development**

    | Lect. | Lab | SCH | Subject Matter Content Code | Admin. Unit | Acad. Year | FICE Code |
    |-------|-----|-----|-----------------------------|-------------|------------|-----------|
    | 03    | -   | 03  | 26 0307000262008-09          | 00         | 3532       | Level 2   |

    Do not complete shaded area.

    Approval recommended by:

    **Wayne Smith** 1-29-08
    Head of Department

    **Dennis Reed** 1-30-08
    Head of Department (if cross-listed course)

    Submitted to Coordinating Board by:

    **Director of Academic Support Services**

    **Larry West** 2/13/06
    Chair, College Review Committee

    **Dean of College** 2/18/08
    Date

    **Dean of College** 4/11
    Date

    To have this form reviewed, please send to Linda F. Lacey, Mail Stop 1265 or fax to 847-8737.

    OAR/AS-5/04
Syllabus
AGRO 671. Plant Growth and Development

Instructor: Scott A. Finlayson, email sfinlayson@tamu.edu, Tel. 847 9287, Room 220B Heep Ctr.

Course description: The course is a comprehensive analysis of plant development primarily focused on the molecular and cellular processes underlying morphogenesis, vegetative growth and reproduction. The role of the major phytohormones as coordinators of development will be analyzed. Plastic developmental responses to conditioning environmental signals will also be considered. Basic theories will be described and discussed using the current literature. Throughout the course general and specific methods employed in the investigation of the processes will be explored.

Course objectives: The student will be expected to develop a thorough understanding of fundamental concepts concerning plant development and the techniques used to test these concepts. The student will be expected to grasp the general principles of molecular and cell biology and apply these to classical developmental processes and to novel situations. The student will be expected to develop their reading and writing skills to critically interpret primary research papers and to clearly convey what they have learned about a specific topic in a review paper (term paper).

Course format: three (3) credit hours presented as lectures.

Prerequisites: MEPS601 or approval of the instructor.

Text: there is no required text. The course material is derived from the current literature. Additionally, the following references may be helpful.


Lecture notes: lecture notes will be available for download prior to class. Students should print these and bring them to the lecture.
Outline of lectures (approximate):

Lectures 1-9. Major phytohormones involved in coordinating plant development. Auxin, GA, ethylene, cytokinins, ABA, brassinosteroids. Their chemistry, biosynthesis, receptors and mode of action from a molecular/cellular point of view.

First Exam

Lectures 10-18. Germination and seed dormancy, photomorphogenesis and phytochrome action, mechanisms of cell and tissue elongation, the shoot apical meristem, regulation of phyllotaxy and leaf development, primary and lateral root development, gravitropism, phototropism, shade avoidance.

Second Exam

Lectures 19-27. Branching/apical dominance, regulation of branching by light signals, photoperiodism, vernalization, floral pattern development, microgametogenesis, megagametogenesis, pollination, embryo development, seed maturation/dormancy.

Final Exam

Course Grade Policy

Evaluation will be based on three exams, four homework assignments, due periodically, and a term paper. The homework assignments will consist of written critiques of assigned readings and are designed to improve the student's critical assessment of primary research papers and to enhance writing skills in preparation for the term paper. The term paper will be due one week before the last day of classes, and will be a new and original, comprehensive critical paper examining a growth or development process selected by the student.

Exam A + Exam B + Exam C + Homework + Term Paper =

100 + 100 + 100 + 100 + 100 = Final Grade

5
Grading scale:

A = 90 and above
B = 89 - 80
C = 79 - 70
D = 69 - 60
F = < 60

Americans with Disabilities Act (ADA) Policy Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be granted a learning environment that provides for reasonable accommodation of their disability. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities, in Room B118 Cain Hall or call 845-1637.

"An Aggie does not lie, cheat, or steal or tolerate those who do"

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the process of the Honor System.

Scholarship depends upon open and honest inquiry. Students have an ethical and moral responsibility to avoid cheating and to help prevent others from cheating. Texas A&M University expects academic integrity and strictly enforces policies against any form of scholastic dishonesty (See the Honor System website: http://www.tamu.edu/aggiehonor/). Please review the Student Rules at http://student-rules.tamu.edu/ for more information regarding these policies. Sanctions range from grade penalties (e.g. F*, 0 on an assignment), probation, and expulsion from the University.

The Texas A&M University Student Rules and Honor System define several forms of academic dishonesty, these include:

1. Cheating: Intentionally using or attempting to use unauthorized materials, information, notes, study aids or other devices or materials in any academic exercise.

2. Fabrication: Making up data or results, and recording or reporting them; submitting fabricated documents.

3. Falsification: Manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.

4. Multiple Submission: Submitting substantial portions of the same work (including oral reports) for credit more than once without authorization from the instructor of the class for which the student submits the work.

5. Plagiarism: The appropriation of another person's ideas, processes, results, or words without giving appropriate credit.

6. Complicity: Intentionally or knowingly helping, or attempting to help, another to commit an act of academic dishonesty.