

CURRICULUM PROPOSAL FORM

DEADLINES:

REGULAR COURSE PROPOSALS: OCTOBER 23, 1998 FOR FALL, 1999 AND FEBRUARY 19, 1999 FOR SPRING, 2000
SHORT-TERM COURSE PROPOSALS: DECEMBER 11, 1998 FOR FALL, 1999 AND MARCH 26, 1998 FOR SPRING 2000

PROPOSAL TITLE: REQUEST FOR NEW COURSE: PLANT PHYSIOLOGY

SPONSOR/S: DEPARTMENT OF BIOLOGICAL SCIENCES; J. M. PAH (Assistant Professor)

DEPARTMENT: Biological Sciences

0402. 465

CHECK ALL THAT APPLY:

UNDERGRADUATE GRADUATE

COLLEGE: _____

If LAS: History/Humanities
 Math/Sciences
 Social/Behavioral Sciences

* * * * *

TYPE OF PROPOSAL (Check ALL that Apply)

<input type="checkbox"/> General Education	<input checked="" type="checkbox"/> New Course (NOT Gen. Ed.)
<input type="checkbox"/> New Course in _____ Bank	<input type="checkbox"/> Name Change (Dept., School, Major)
<input type="checkbox"/> Existing course, Add To _____ Bank	<input type="checkbox"/> Changes in Degree Requirements
<input type="checkbox"/> Multicultural/Global Designation	<input type="checkbox"/> Changes Involve Gen. Ed. requirements
<input type="checkbox"/> Writing Intensive Designation	<input type="checkbox"/> Minor Changes to Existing Courses
<input type="checkbox"/> New Minor/Concentration/Specialization	<input type="checkbox"/> Course is NOT General Education
<input type="checkbox"/> New Major/Degree Program	<input type="checkbox"/> Course IS General Education
<input type="checkbox"/> Short Term Course Proposal	

DEPARTMENT
(SIGNATURE INDICATES APPROVAL)

[Signature] 10-20-98 [Signature] 10-20-98

DEPT. CURRICULUM CHAIR / DATE DEPT. CHAIRPERSON / DATE

COLLEGE CURRICULUM COMMITTEE
DATE OF OPEN HEARING (if necessary) 11/24/98

APPROVED
 NOT APPROVED

COMMENTS:

[Signature] [Date]

SIGNATURE DATE

ACADEMIC DEAN (& GRADUATE DEAN, for New Graduate Programs Only)

APPROVED
 NOT APPROVED

COMMENTS:

[Signature] [Date]

SIGNATURE (Academic Dean) DATE

[Signature] [Date]

SIGNATURE (Graduate Dean) DATE

UNIVERSITY CURRICULUM COMMITTEE

DATE OF OPEN HEARING (if necessary) 11-24-98 (college level only)

APPROVED

NOT APPROVED

REMARKS:

Jane M. Rice 6/30/99
SIGNATURE DATE

changes noted

SENATE

Date announced at Senate 12-8-98

Voted upon at Senate: **Approved** **Not Approved** **Date:**

EXECUTIVE VICE PRESIDENT/PROVOST

APPROVED

NOT APPROVED If no, reasons are as follows:

STUDENT CREDIT HOURS 3 FACULTY LOAD HOURS 3 EQUALIZED CREDIT HOURS _____

OFFICIAL COPY & APPROVAL SHEET FILED (DATE): _____

DATE/SIGNATURE EXECUTIVE VICE PRESIDENT/PROVOST (Signature) 7/21/99

REGISTRAR

DATE APPROVED COURSE DESCRIPTION RECEIVED _____

HEGIS TAXONOMY & COURSE NUMBER ASSIGNED 0402 405

DATE/SIGNATURE OF REGISTRAR Robert A. Keelat 7/26/99

NOTIFICATION FORWARD:

SENATE CURRICULUM COMMITTEE CHAIRPERSON

DEPARTMENT CHAIRPERSONS

ACADEMIC DEAN(S)

REGISTRAR

TM
8/16/99

SPONSOR(S)

Rowan University
Department of Biological Sciences

Request for new course:

Plant Physiology 0402.405

1. DETAILS:

1a. Course Title: Plant Physiology

1b. Sponsors: Department of Biological Sciences
Joseph M. Patt, Assistant Professor

1c. Credit Hours: 3 s.h.

1d. Course Level: Undergraduate; 400-level HEGIS number requested. Limited to Seniors.

1e. Curricular Effect:

Important. The course will help alleviate a critical need for biology classes that can be offered to graduate students in the MA programs in Environmental Education and Subject Matter Teaching. The Department would begin offering this course every other year in the Fall semester.

1f. Prerequisites:

Botany (0402.200) or Plant Diversity (0402.201), Organic Chemistry, (1907.200) or permission of instructor; Senior class standing.

1g. Suggested Time and Scale of Implementation:

Effective Fall 1999.

1h. Adequacy of Present Staff, Resources, Library Facilities:

All are adequate except that the Library Facilities are only minimally adequate at present. The library needs to increase the number of plant physiology and plant biology journals that it currently carries, so that students have an adequate resource base for researching papers and projects.

1i. Short-term Evaluation:

All of the Biological Sciences are routinely evaluated by the Departmental Curriculum Committee and considered by the entire Department.

2. RATIONALE:

Currently, we offer the graduate course Plant Physiology 0406.580. The course will help alleviate a critical need for biology classes that can be offered to graduate students in the MA Environmental Education Program and MA Subject Matter Teaching Program. Currently, seniors in the department are permitted to enroll in the graduate course Plant Physiology 0406.580 only as a 'senior privilege course'; cross-listing the course in the undergraduate course catalog would ensure a sufficiently high enrollment for the course to be offered. No "additional" sections of the course need be offered -- the graduate and undergraduate course would meet together. The Department would like a mechanism whereby graduate students enrolled in the course will be given an additional assignment(s) -- for example, a term paper. We believe that graduate students should be required to do more for a course than undergraduate students. We can do that if 2 "levels" of the course existed, even though the class itself will be mixed.

3. ESSENSE OF THE COURSE:

3a. Objectives:

The objectives of the proposed undergraduate course are the same as for the existing graduate course -- namely, to provide students with an understanding of basic plant physiological processes: photosynthesis, transpiration, role of plant growth regulators, nutrient uptake. A strong emphasis will be placed on plant-structures with respect to their physiological functions.

3b. Topical Outline/Content:

Since the graduate and undergraduate class will be taught together, the topical outline for the course will be identical to that of the current graduate course. No changes will be necessary in the current syllabus, with the exception of the criteria for grading of the students. All students would take the same exams.

• General Remarks:

Important concepts in plant physiology will be described during this course. The course will provide students who are interested in botany, horticulture and environmental education with the opportunity to increase their knowledge of basic plant biology.

• Objectives:

1. To enable students to develop an understanding of the basic physiological processes found in plants.
2. To enable students to develop an understanding of form and function processes in plants.

• Course Outline:

The topics to be covered are listed below. The instructor will supply the students with a syllabus during the first week of classes. The instructor will assess any technology advances in the subject matter prior to the course and make topic changes as deemed appropriate to maintain the level and currency of instruction. Where possible and practical, assigned readings for the topics listed will include articles from peer-reviewed science journals.

Introduction (review of basic plant morphology and anatomy)
Characteristics of plant cells
Chloroplasts and plastids: endosymbiosis, structure and development
Photosynthesis I: The light-dependent reactions: photon capture and chemiosmosis
Photosynthesis II: The light independent reactions: carbon fixation
Photosynthesis III: photorespiration, C3 and C4 plants, CAM PS
Perception of environmental stimuli and induction-response
Phytochrome and response to photoperiod
Plant growth regulators I
Plant growth regulators II
Transpiration and internal water relations I
Transpiration and internal water relations II
Nutrient uptake
Secondary Metabolites I: plant defenses
Secondary Metabolites II: pigments, fragrances and flavors
Symbiosis: Mycorrhizae, *Rhizobium* and Acacia Ants.

- **Methods of Grading:**

1. Hour Exams and Final Exam.
2. Class Participation: Students are expected to attend all classes, and to actively participate in discussions.

3c. Evaluation and Grading Procedure of Students:

Students will be graded based on their performance on several hour exams plus a final exam. Classroom discussion is heavily encouraged as part of the general learning process.

3d. Course Evaluation:

The Biological Sciences Department, as a whole, routinely reviews the Department's courses to assess the courses' success in meeting the goals and objectives of the College and the Program.

4. Results of Consultation:

Since this is essentially a "split" of a currently existing course, no outside consultation was done. No other Rowan University department offers a course with a similar content.

5. Additional Information:

None.

6. Catalog Description:

See next page.

NB: Identical to existing 500-level catalog description with the exception for the need to add senior class standing.

Catalog Description

0402.4xx 3 s.h.

Plant Physiology

Prerequisites: Senior class standing; 0402.200, 0402.201, 1907.200, or permission of instructor.

This course will cover the principles and factors concerned with development of plants, including nutrition, water relationships, photosynthesis, chemosynthesis, reproduction, and growth.