

FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—NEW COURSE PROPOSAL¹

UGPC	APPROVAL
UFS	APPROVAL
SCNS	SUBMITTAL
CONFIRMED _____	
BANNER	POSTED
CATALOG _____	

DEPARTMENT: **BIOLOGICAL SCIENCES**

COLLEGE: **Charles E. Schmidt College of Science**

RECOMMENDED COURSE IDENTIFICATION:

PREFIX BOT COURSE NUMBER 6506 LAB CODE (L or C) L

(TO OBTAIN A COURSE NUMBER, CONTACT MJENNING@FAU.EDU)

COMPLETE COURSE TITLE: **ADVANCED PLANT PHYSIOLOGY LABORATORY**

EFFECTIVE DATE

(first term course will be offered)
SUMMER, 2016

CREDITS²:
2

TEXTBOOK INFORMATION:

Lab manual written by Dr. Xing-Hai Zhang posted via Blackboard

GRADING (SELECT ONLY ONE GRADING OPTION): REGULAR SATISFACTORY/UNSATISFACTORY _____

COURSE DESCRIPTION, NO MORE THAN THREE LINES:

This course uses a series of lab exercises to help students to better understand the principles of plant physiology. It focuses on hands-on training in experimental skills and learning of experiment design, research tools and methodology.

PREREQUISITES*:

enrolled graduate students or instructor's permission

COREQUISITES*:

NONE

REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL)*:

GRADUATE LEVEL OR INSTRUCTOR'S PERMISSION

** PREREQUISITES, COREQUISITES AND REGISTRATION CONTROLS WILL BE ENFORCED FOR ALL COURSE SECTIONS.*

MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE: PHD DEGREE IN PLANT BIOLOGY, WITH SPECIALIZATION IN PLANT PHYSIOLOGY, PLANT BIOCHEMISTRY AND PLANT MOLECULAR BIOLOGY, CONTINGENT UPON DEPARTMENTAL APPROVAL

Faculty contact, email and complete phone number:

Dr. Xing-Hai Zhang
xhzhang@fau.edu
561-297-1011

Please consult and list departments that might be affected by the new course and attach comments.³

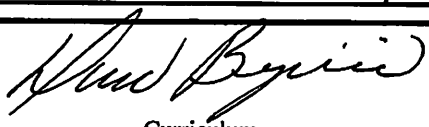
**THIS IS THE ONLY GRADUATE LEVEL PLANT PHYSIOLOGY LAB COURSE TAUGHT AT FAU.
NO CONFLICT WITH OTHER DEPARTMENTS OR COLLEGES.**

Approved by:

Department

College

College Dean:



Chair:

Chair:

Date:

02.09.16

1. Syllabus must be attached; see guidelines for requirements:
www.fau.edu/provost/files/course_syllabus.2011.pdf

2. Review Provost Memorandum: Definition of a Credit Hour

www.fau.edu/provost/files/Definition_Credit_Hour_Memo_2012.pdf

3. Consent from affected departments (attach if necessary)

UGPC Chair: _____

Graduate

College

Dean:


UFS

President:

Provost: _____



Charles E. Schmidt College of Science
Department of Biological Sciences
777 Glades Road
Boca Raton, FL 33431
tel: 561.297-3320
fax: 561.297-2749

TO: University Graduate Programs Committee (UGPC)
FROM: Rodney Murphey, Ph.D. 
Professor and Chair
Department of Biological Sciences
DATE: February 8th, 2016
RE: New Course Proposal Consent

To Whom It May Concern:

This note constitutes acknowledgement and consent of the Department of Biological Sciences for the creation of a new course within the department: **BOT 6506L: Advanced Plant Physiology Lab.**

Best Regards,

Rodney Murphey, Ph.D.
Chairman, Department of Biological Sciences
Director, Life Science Initiative on the MacArthur Campus

Email this form and syllabus to UGPC@fau.edu one week before the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website prior to the meeting.

FAUnewcrseGrad—Revised September 2013

Dear Departmental Graduate/Undergraduate Program Committee,

I have asked Dr. Janet Blanks (The Center for Complex Systems), Dr. David Wolgin (Psychology), Dr. Marc Kantorow (College of Medicine) and Dr. Jerry Haky (Chemistry). I have got no response from Blanks. All others express **no objection** (see below) to my new courses "Advanced Plant Physiology" and "Advanced Plant Physiology Laboratory".

Thank you for consideration.

Xing-Hai Zhang

Followings are their responses:

David Wolgin <wolgindl@fau.edu>

Wed, Oct 8, 2014 at 1:03 PM

To: Xing-hai Zhang <xhzhang@fau.edu>

The Dept. of Psychology has no objections to adopting these courses.

David L. Wolgin, Chair

Sent from my iPhone

Jerome Haky <hakyj@fau.edu>

Thu, Oct 9, 2014 at 11:36
AM

To: Xing-hai Zhang <xhzhang@fau.edu>

Dear Dr. Zhang,

The Department of Chemistry and Biochemistry has no objections to these courses.

Jerome E. Haky, Ph.D.
Interim Chair
Department of Chemistry and Biochemistry
Florida Atlantic University
777 Glades Road
Boca Raton, FL 33431
561-297-3338



Charles E. Schmidt College of Medicine
777 Glades Road
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Thursday, October 9th, 2014

To: Charles E. Schmidt College of Science
Biology Department

The Biomedical Science Department in the Charles E. Schmidt College of Medicine has reviewed the new Biology course proposals for BOT 6506 (2 CREDITS)- ADVANCED PLANT PHYSIOLOGY and BOT 6506L (2 CREDITS)- ADVANCED PLANT PHYSIOLOGY LABORATORY, and does not have any objections to the proposed courses. The courses do not contain any material that could constitute a conflict with our Biomedical Science Graduate program curriculum.

Sincerely,

A handwritten signature in black ink that reads 'Marc Kantorow'. The signature is fluid and cursive, with a long horizontal stroke at the end.

Marc Kantorow, Ph.D.
Professor and Director of Graduate Programs
Charles E. Schmidt College of Medicine
Florida Atlantic University
777 Glades Rd.
Boca Raton, FL 33431
561-297-2910

BOT 6506L (2 CREDITS)
ADVANCED PLANT PHYSIOLOGY LABORATORY
May 11 - June 22, 2016
12:30 – 3:30 pm, M, W, F, Sanson Science 108, Boca Raton
Department of Biological Sciences
Charles E. Schmidt College of Science, Florida Atlantic University

Teaching Assistants:

xxxx, SC 259, e-mail: xxx@my.fau.edu

xxxx, SC 259, e-mail: xxxx@my.fau.edu

Office Hours for TAs: M, W 3:30-4:30 pm, F 10:30 am-12:30 pm or by appointment (you should be able to see either of the two TAs)

Instructor: Dr. Xing-Hai Zhang, SC 262, Phone: 561-297-1011, e-mail: xhzhang@fau.edu

Required Textbook: Lab manual online via Blackboard. You print it out and bring to the lab.

Prerequisites: enrolled graduate students or instructor's permission.

Course Description

This course uses a series of lab exercises to help students to better understand the principles of plant physiology. Its main focus is hands-on training in experimental skills and learning of experiment design, research tools and methodology.

Course Objectives

To help you better understand about the lectures (BOT 6506) with hands-on experiments.

To introduce to you some of the research methods and techniques used in plant biology.

To provide an opportunity to improve your scientific writing skills.

To create a lab environment for you to experience scientific research and culture.

Students are expected to study for a minimum of two hours for every hour of class time.

Course Content (Changes/rearrangements are possible.)

Laboratory Safety

Scientific Research

Ethics in Science

Microscope

Cell Structure

The Organelles

The Cell Boundary

Cell Membrane and Water Movement

Water Movement — Diffusion

Photosynthesis

Plant Respiration
Mineral Nutrition
Plant Growth, Light and Gravity
Seed Germination, Hormones and Phytochrome
Enzymes — Biological Catalysts (Polyphenoloxidase)
Plant Biochemistry — Isolation and Measurement of Proteins from Plant Tissues
Visualization of Transgene Action
Segregation of Transgenes and Homozygosity
Isolation and PCR Analysis of DNA from Plant Cells

Lab Exercise

Lab sections are administrated and graded by the TAs, supervised by Dr. Zhang. This is a very important part of learning not only to help you better understand some of the concepts conveyed in the lectures, but also to provide a basic training of research skills and give you a “feel” of working in a research lab. Each student must bring the lab manual (protocols) and a notebook to each class. Lab report and notebook are important components of the final grade.

You will work together with your partner to do each project throughout the semester. You are required to write 2 full length, formal lab reports. The topics, due dates and requirements will be announced in advance. Late papers will receive a penalty of 10 points per day late. After a graded report is returned to class, you will have one week to discuss with the TA and, if necessary, the instructor.

There will be five quizzes throughout the course. These quizzes will cover lab-related contents and may be cumulative. Your understanding of the knowledge, procedures and observations involved in the lab experiments will be tested. There are no make-up quizzes and a score of zero will be recorded for each missing quiz.

Lab worksheets will be handed in at the end of the lab and will be returned to you promptly. Missing, unfinished, altered or grossly erroneous record of lab exercises will receive a penalty of up to 10 points per experiment.

Attendance Policy

Please observe the relevant chapters of the *FAU Graduate Catalog*. Since each lab exercise requires your participation and cannot be easily made up, attendance is **MANDATORY**. Absence can be excused only with valid written documentation and by following proper procedures. Absence of the lab class without valid documents will receive a penalty of 30 points per class. Absence can be excused only under certain circumstances and with written documentations. Valid situations include a reasonable number of participation in jury duty, FAU-approved activities, and religious observance, but students must discuss with the TA to arrange make-up experiments as feasibly possible.

Grading

Your final grade will be based on 500 points.

- Five quizzes: 250 points.
- Lab report written as a scientific research paper: 100 points.
- Special topic review paper: 50 points.
- Lab worksheets & Lab notebook: 100 points.
- Attendance: 30 points will be deducted for every lab class missed.

Tentative Course Schedule

- Note: Schedule adjustments may be needed as we progress through the course

Date	Experiment Topic	Lab Manual
May 11	Seed germination, Microscope, Cell structure	Chap 1, 2, 12
May 13	Plant cloning, Tissue culture	Chap 16
May 15	Organelles, Cell Boundary	Chap 3,4
May 18	Quiz 1, Membrane, Water movement	Chap 5,6
May 20	Water potential, light, gravity	Chap 7, 8
May 22	Photosynthesis	Chap 9
May 25	Plant respiration	Chap 10
May 27	Mineral Nutrition	Chap 11
May 29	Quiz 2, Tissue culture, hormones, phytochrome	Chap 12,16
June 1	Senescence, Enzymes	Chap 13,14
June 3	Protein analysis	Chap 15
June 5	Quiz 3, More tissue culture	Chap 16
June 8	Transgene analysis	Chap 17
June 10	Genetic segregation	Chap 18
June 12	Quiz 4, DNA extraction from leaves, PCR analysis	Chap 19
June 15	Gel electrophoresis, DNA extraction from strawberry	Chap 20
June 17	Overview lab report	
June 19	Quiz 5, hand in report, notebook	
June 22	Return lab reports and notebooks, clean up	

Assignment of Grades

Point Range	Percentage	Grade
555-600	93-100%	A
537-554	90-92%	A ⁻
519-536	87-89%	B ⁺
495-518	83-86%	B
477-494	80-82%	B ⁻
459-476	77-79%	C ⁺
435-458	73-76%	C
417-434	70-72%	C ⁻
399-416	67-69%	D ⁺
375-398	63-66%	D
357-374	60-62%	D ⁻
356 or less	59% or less	F

Incomplete Grades

Students should be aware that a grade of I (incomplete) will be given only under specific circumstances and through certain procedures. For the FAU policy on “I” grade, please consult with *FAU Graduate Catalog*.

Grade Reporting

Graded quizzes and report will be returned to the class as soon as possible. The final grades may be posted online. Instructors are not allowed to discuss grades over the telephone or e-mail with anyone, please meet in person to inquire about a grade.

Code of Academic Integrity

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see University Regulation 4.001. For this class, use of internet for learning is very helpful for your study and is strongly encouraged. But copying/plagiarizing in any way is wrong and is not permitted. In lab exercises you will work with a partner and will share the data obtained. However, your lab note and report must be the work of your own.

Classroom Etiquette

Coming late to class is disruptive and rude, particularly to your partner and perhaps costly. No eating, drinking or any other disruptive behaviors are allowed in the lab. Lab safety and cleanup will be strictly observed. Close attentions to the instructions of TAs are required. Being considerate and respectful is always appreciated.

Support Available

Lab course often brings a relaxed and informal environment. You should apply your motor skills as well as your intelligent judgment to each experiment. Enjoy it while you learn something important from each experiment. However, if you experience any difficulty in this course for any reason, please do not hesitate to consult with the TAs or Dr. Zhang. We will try our best to help you.

Students with Disabilities

In compliance with the Americans with Disabilities Act (ADA), students who require reasonable accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) — in Boca Raton, SU 133 (561-297-3880); in Davie, LA 240 (954-236-1222); in Jupiter, SR 110 (561-799-8010); or at the Treasure Coast, CO 117 (772-873-3441) — and follow all OSD procedures.