

FLORIDA ATLANTIC UNIVERSITY™

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

Graduate Programs—NEW COURSE PROPOSAL¹

DEPARTMENT: BIOLOGICAL SCIENCES

COLLEGE: CHARLES E. SCHMIDT COLLEGE OF SCIENCE

RECOMMENDED COURSE IDENTIFICATION:

PREFIX BOT COURSE NUMBER 6736 LAB CODE (L or C) C

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

COMPLETE COURSE TITLE: ADVANCED PLANT BIOTECHNOLOGY

EFFECTIVE DATE

(first term course will be offered)

 FALL 2015

CREDITS²: 3

TEXTBOOK INFORMATION:

- (1) The Molecular life of Plants, by R Jones, H Ougham, H Thomas and S Waaland (2013), Wiley-Blackwell.
- (2) Plant Biotechnology: the genetic manipulation of plants, by A. Slater, N.W. Scott, M.R. Fowler, 2nd edition (2008). Oxford University Press.
- (3) Research articles posted on Blackboard.

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

COURSE DESCRIPTION, NO MORE THAN THREE LINES:

This course combines lectures and labs. Each student has his/her own research project. This course provides materials and training to help students gain current knowledge of structure and function of plant genomes, genes, and gene products; to learn hands-on techniques of DNA- transfer-based plant biotechnology; and to prepare for a professional career in plant/agriculture biotechnology research.

PREREQUISITES*:

GRADUATE LEVEL OR BY PERMISSION OF INSTRUCTOR.

COREQUISITES*:

REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL)*:

Graduate Level or Instructors Permission

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

MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE: MEMBER OF THE GRADUATE FACULTY OF FAU AND HAS A TERMINAL DEGREE IN THE SUBJECT AREA (OR A CLOSELY RELATED FIELD).

Faculty contact, email and complete phone number:

Xing-Hai Zhang, Ph.D.
xhzhang@fau.edu
 (561) 297-1011

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

Biology was unable to identify any potential conflicts with other colleges/Dept..

Approved by:

Department Chair: 

College Curriculum Chair: 

College Dean: 

UGPC Chair: 

Graduate College Dean: 

UFS President: _____

Provost: _____

Date:

 10/30/14

 10/30/14

 10/30/14

 11/5/14 11/12/14

 11/15/14

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)



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: September 19, 2014
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: BSC 5467C-Advanced Plant Biotechnology.

Best Regards,

A handwritten signature in blue ink, appearing to read 'R.K. Murphey', is written over the printed name and title.

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

BOT 6736C (3 credits)
ADVANCED PLANT BIOTECHNOLOGY
FALL SEMESTER, 2015

Sanson Science Building 119 Wednesdays 9:00-10:20 am

Sanson Science Building 108 Fridays 9:00-11:50 am

Department of Biological Sciences, Charles E. Schmidt College of Science
Florida Atlantic University

Instructor: Dr. Xing-Hai Zhang (pronounced like “shing-hi jong”), Associate Professor of Plant Molecular Biology, SC 262, Phone: 561-297-1011, e-mail: xhzhang@fau.edu

Office Hours: Wednesdays, 10:30 am - 4 pm; Fridays, 12 pm - 4 pm, or by appointment

Teaching Assistant: xxxx, phone: 561-297-1282, e-mail: xxx@my.fau.edu; office: SC 259.
Office hours: Wednesdays, 1 pm - 3 pm

Suggested Readings:

- (1) The Molecular life of Plants, by R Jones, H Ougham, H Thomas and S Waaland (2013), Wiley-Blackwell. ISBN # 978-0-470-87012-9
- (2) Plant Biotechnology: the genetic manipulation of plants, by A. Slater, N.W. Scott, M.R. Fowler, 2nd edition (2008). Oxford University Press.
- (3) Research articles posted on Blackboard.

Prerequisites: enrolled graduate students or instructor’s permission.

Course Description

This course combines lectures and labs. Each student has his/her own research project. This course provides materials and training to help students gain current knowledge of structure and function of plant genomes, genes, and gene products; to learn hands-on techniques of DNA-transfer-based plant biotechnology; and to prepare for a professional career in plant/agriculture biotechnology research.

Course Objectives

- To gain knowledge of structure, function and analysis of genomes, genes and gene products.
- To learn hands-on techniques of DNA-transfer based plant biotechnology.
- To train for a possible professional career in plant/agriculture biotechnology research.
- Students are expected to study for a minimum of two hours for every hour of class time.

Course Content/Topics (Minor changes/rearrangements possible)

1. Introduction of nuclear genomes
2. Introduction of organelle genomes (mitochondrial and plastid)
3. Concepts of genes and gene organization

4. Concepts of gene cloning and expression
5. Gene transfer via biological interaction: *Agrobacterium*-mediated transfer
6. Gene transfer via physical process: particle bombardment (gene gun)
7. Construction of nuclear transformation vectors
8. Construction of chloroplast transformation vectors
9. Plant tissue culture techniques
10. Plant totipotency, cloning and regeneration
11. Extraction and analysis of DNA plasmids from bacteria
12. *Agrobacterium*-mediated transformation, selection and regeneration
13. Chloroplast transformation via particle bombardment, selection and regeneration
14. Identification of putative transgenic plants by selection marker gene
15. DNA analysis of putative transgenic plants: DNA isolation and PCR
16. Protein analysis of transgenic plants: protein extraction, SDS/PAGE, enzyme assay
17. Data processing and report writing
18. Development of research project, proposal and presentation

Course Procedure

This course is composed of two integrative parts — lectures and lab exercises. The lectures will introduce the experiment concepts, update or refresh your knowledge of the subjects and discuss the design, rationale and predicted outcome of an experiment. The major portion of this course is lab exercise. Real experiments are carried out in a real lab setting.

We will attempt to carry out most of the experiments within the allotted time. However, depending on the progress and need of specific projects, you should be prepared to take care of your experiments beyond the class schedule.

Assessment

Your attitude, motivation and effort are among the most important components in performance assessment. Carefully planning and executing experiments, intelligently following protocols, self-motivation, innovation and being inquisitive are all the qualities necessary to be a good scientist. Several written assignments are planned during the course. A comprehensive lab report in a format of a formal scientific publication is required at the end of the course. Successful completion (good results) of your experiments, i.e. generation of a true transgenic plant, will certainly help your grade. A research proposal on a predetermined topic and a 15-min oral presentation of this proposal by each of the students will conclude this class. Late assignments/reports result in the penalty of 20% of the scores per day. More details will be provided in advance.

Tentative schedule for Assessment

- Week 3 Assignment 1 (use of Genbank and data mining)
- Week 5 Assignment 2 (analysis of gene gun utility)
- Week 7 Assignment 3 (*Agrobacterium*-mediated DNA delivery to plant cells)
- Week 10 Lab report
- Week 14 Research proposal (final)
- Week 15 Oral presentation (final)

Grading

The final letter grade will be based on:

- Assignments: 30%
- Project report: 30%
- Research proposal: 20%
- Oral presentation: 15%
- Attendance: 5%

Assignment of Grades

Cumulative Performance Percentage	Grade
>94%	A
>90% - 94%	A-
>87% - 90%	B+
>83% - 87%	B
>80% - 83%	B-
>75% - 80%	C+
>65% - 75%	C
>60% - 65%	C-
>57% - 60%	D+
>53% - 57%	D
>50% - 53%	D-
<50%	F

Attendance Policy

Attendance is mandatory. Missing a total of two classes shall result in a request of withdraw (grade W) from this class or a grade of "F" if without a valid excuse, or a grade of "I" when applicable. Absence can be excused only under certain circumstances and with valid documentations, such as no more than a couple of times of participation in jury duty, University-approved activities, medical emergency, and religious observance. There is no possibility of making up missed assignments and reports. Missing due deadline results in penalty. Your level of attention, attitude, and effort will always contribute significantly to the success in your study (including this class) and your future career.

Honor Code of Academic Integrity

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty, including cheating and plagiarism, 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 at http://www.fau.edu/ctl/4.001_Code_of_Academic_Integrity.pdf

For this class, use of internet for learning and researching is very helpful and is strongly encouraged. However, using others' work without proper acknowledgement is wrong and may fall into the category of academic misconducts. Assignments and reports must be individual efforts and based on your own research data. Plagiarism, even if due to innocent oversight, should be avoided at all cost.

Classroom Etiquette and Lab Safety

You are encouraged to actively participate in discussion and ask challenging questions any time during the lectures. Coming late to class is disruptive. I personally feel annoyed by late comers. All electronic devices must be turned off during class. Laptop computers are allowed only if you do not bother others. No eating, drinking or any other disruptive behaviors are allowed during the lecture or the lab.

We will try to cultivate a relaxed and engaging environment in class to encourage discussion and debates. However, lab safety rules and procedures must be strictly followed since we will be dealing with biohazardous and transgenic materials. You are encouraged to take proper training classes in lab safety offered by Florida Atlantic University. To successfully carry out an experiment, you should follow instructions intelligently, pay attention to details, use instruments/reagents properly and ask when uncertain. And be inquisitive and curious.

Florida Atlantic University policy on the use of electronic devices states: "In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions."

Students with Disabilities

In compliance with the Americans with Disabilities Act, 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.

Michelle Cavallo

From: Carolina Clark
Sent: Monday, September 29, 2014 10:43 AM
To: William Brooks; Rodney Murphey
Cc: Keith Brew; Carolina Clark; Marc Kantorow; John Newcomer; David Bjorkman; Michelle Cavallo
Subject: Re: New Biology Course Proposals
Attachments: Spring 15 new course- Adv. Mol. Bio.pdf; Spring 15- New course- Hum. Gen..pdf; Spring 15- New course- Imm. Sem..pdf; Spring 15- New course- Neu.Add..pdf; Biology New Course Proposals.docx

Importance: High

Dear Dr. Brooks and Dr. Murphy,

We have reviewed your new biology course proposals and have no objections to the proposed courses (see attached letter). In turn, we are awaiting your approval/consent letters for our Biomedical Science Graduate Courses, as promised to us last Friday by Dr. Ivy. Could you please provide us the information no later than Wednesday, as we must submit all agenda items to UGPC by October 1st? For your convenience, I have attached the course proposals to this email.

Thanking you in advance for your assistance and understanding in this time-sensitive matter.

Sincerely,

Carolina Clark
Graduate Programs Coordinator
Charles E. Schmidt College of Medicine
777 Glades Road, Rm. 206-A
Boca Raton, FL, 33431-0991
561-297-4549
clarkc@fau.edu
www.med.fau.edu

From: Michelle Cavallo <MCAVALLO@fau.edu>
Date: Tuesday, September 23, 2014 at 12:52 PM
To: Keith Brew <KBREW@fau.edu>
Cc: William Brooks <wbrooks@fau.edu>, Carolina Clark <clarkc@fau.edu>
Subject: New Biology Course Proposals

Dear Dr. Brew,

The Biology Department is attempting to formalize a number of graduate and undergraduate level courses which have previously been offered under the special topics course code. Each course has been offered at least once and half of the courses on the list have run in excess of four times (the range being 1 to 8 semesters offered). Because these courses have been successful with our students (enrollment has been consistently high), we would like to have them formally recorded in the university catalog.

In order to do so, I am filling out new course proposal forms and under the "Please consult and list departments that might be affected by the new course and attach comments" box, Dr. Randy Brooks, as Chair of our Departmental Graduate Program Committee, suggested I list the Biomedical Science Department. He instructed me to contact you and request email confirmation that your department has no objections to the proposed courses.

The new course proposals and associated syllabi are attached for your review and listed below. Courses marked with an asterisk below are courses which we are proposing to dual list at both the graduate and undergraduate levels. All other courses on the list are proposed only at either the graduate (G) or the undergraduate (UG) level at this time and all courses are labeled by level.

1. (G) Computer Graphics for Biologists (BSC 6466)
2. (G) Methods in Biotechnology (BSC 6468L)
3. *(G) Advanced Plant Biotechnology and Lab (BSC 5467C)
4. *(UG) Genetics Lab (BSC 4007L)
5. *(G) Advanced Genetics Lab (BSC 5038L)
6. *(UG) Molecular Genetics of Aging (BSC 4022)
7. *(G) Advanced Molecular Genetics of Aging (BSC 5029)
8. (UG) Life of a Scientist
9. (UG) Introduction to Honors I
10. (UG) Introduction to Honors II
11. (G) Practical Cell Neuroscience
12. (G) Human Neuroanatomy
13. (G) Neurophysiology
14. (G) Advanced Neurophysiology

The Advanced Plant Biotechnology and Lab, Methods in Biotechnology, and Practical Cell Neuroscience courses listed above already exist as undergraduate level courses in the catalog and, in these two cases, we are simply adding a graduate version of each of the existing courses. (Methods in Biotechnology is the graduate level equivalent to undergraduate level Biotechnology I and II Laboratory courses combined).

In perusing the university catalog, we were not able to identify any apparent direct course conflicts within your department but we would appreciate it if you would respond an email with your comments and the comments of any faculty within your department who teach related courses. Thank you very much for your time.

Regards, Michelle

Michelle Cavallo
Administrative Assistant & Graduate Coordinator
Department of Biological Sciences
Florida Atlantic University
777 Glades Road
Boca Raton, FL 33431
PH: 561-297-0384



Charles E. Schmidt College of Medicine
777 Glades Road
Boca Raton, FL 33431
(561) 297-0706
Fax: (561) 297-2519

Monday, September 29th, 2014

To: Charles E. Schmidt College of Science
Biology Department

To Whom It May Concern,

The Biomedical Science Graduate Program in the Charles E. Schmidt College of Medicine has reviewed the new Biology course proposals, and does not have any objections to the proposed courses. The courses do not contain any material that could constitute a conflict with our program curriculum.

Sincerely,

A handwritten signature in black ink that reads 'Marc Kantorow'. The signature is fluid and cursive, with the first name 'Marc' being more prominent than the last name 'Kantorow'.

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