

# FLORIDA ATLANTIC UNIVERSITY™

## Graduate Programs—NEW COURSE PROPOSAL <sup>1</sup>

UGPC APPROVAL \_\_\_\_\_  
 UFS APPROVAL \_\_\_\_\_  
 SCNS SUBMITTAL \_\_\_\_\_  
 CONFIRMED \_\_\_\_\_  
 BANNER POSTED \_\_\_\_\_  
 CATALOG \_\_\_\_\_

DEPARTMENT: BIOLOGICAL SCIENCES

COLLEGE: CHARLES E. SCHMIDT COLLEGE OF SCIENCE

**RECOMMENDED COURSE IDENTIFICATION:**

PREFIX BSC COURSE NUMBER 5038 LAB CODE (L or C) L

(TO OBTAIN A COURSE NUMBER, CONTACT [M.JENNING@FAU.EDU](mailto:M.JENNING@FAU.EDU))

COMPLETE COURSE TITLE: ADVANCED GENETICS LAB

**EFFECTIVE DATE**

(first term course will be offered)

FALL 2015

CREDITS <sup>2</sup>: 3

TEXTBOOK INFORMATION :Research papers and review articles, available in the Content Folder on Blackboard

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

**COURSE DESCRIPTION, NO MORE THAN THREE LINES:**

This laboratory course is open to advanced undergraduates and graduate students. In this course students will gain significant experience in classical and molecular genetics using two powerful model systems, the roundworm *Caenorhabditis elegans* and fruit fly *Drosophila melanogaster*. Experiments will be performed to identify morphological and behavioral mutant phenotypes, investigate gene linkage and crossing over, establish dominant versus recessive and sex-linked versus autosomal inheritance, and generate genetic maps.

**PREREQUISITES\*:**

**GRADUATE LEVEL**

BSC 1010 and 1011 and PCB 3063 with a minimum of C- or better

**COREQUISITES\*:**

**REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL)\*:**

Graduate Level

\* 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:

Kailiang Jia, M.D., Ph.D.  
[KJIA@fau.edu](mailto:KJIA@fau.edu)  
 (561) 297-0512

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

College of Medicine: See Attached;

**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    11/22/14

11/15/14

1. Syllabus must be attached; see guidelines for requirements: [www.fau.edu/provost/files/course\\_syllabus.2011.pdf](http://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](http://www.fau.edu/provost/files/Definition_Credit_Hour_Memo_2012.pdf)

3. Consent from affected departments (attach if necessary)

Email this form and syllabus to [UGPC@fau.edu](mailto: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.

1931

10/13/31  
10/14/31  
10/15/31  
10/16/31  
10/17/31

*[Handwritten signatures and notes]*



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 5038L-Advanced Genetics Lab.

Best Regards,

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

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

**Advanced Genetics Lab  
Fall Semester, 2015**

**Course Information**

Course Title: Advanced Genetics Lab (3 credits)

Course Number: BSC-5038L

Course Date: Aug. 22 – Dec. 11, 2015, Tuesday and Thursday, 9:30am – 12:20pm

Course Location: Boca Campus, Sanson Life Science Building, Rm. 108

Instructor: **Dr. Kailiang Jia**  
Assistant Professor  
Sanson Life Science Building, Rm. 261  
Email: [kjia@fau.edu](mailto:kjia@fau.edu)  
Phone: (561) 297-0512  
Office hours: Tuesday and Thursday, 1:00pm – 4:00pm  
or by appointment

Teaching Assistant: Shweta Singh  
Sanson Life Science Building, Room 253  
Email: [ssingh34@fau.edu](mailto:ssingh34@fau.edu) Phone: (240) 431-8420  
Office hours: Tuesday and Thursday, 1:00pm – 2:00pm

**Course Description:** This laboratory course is open to advanced undergraduates and graduate students. In this course students will gain significant experience in classical and molecular genetics using two powerful model systems, the roundworm *Caenorhabditis elegans* and fruit fly *Drosophila melanogaster*. Experiments will be performed to identify morphological and behavioral mutant phenotypes, investigate gene linkage and crossing over, establish dominant versus recessive and sex-linked versus autosomal inheritance, and generate genetic maps. In addition, DNA and RNA isolation, gel electrophoresis, fluorescence microscopy, PCR, RNA interference, and analysis of DNA sequences will be utilized to precisely map the position of genes on chromosomes, knockdown specific gene functions, analyze gene expression levels, and determine genotypes of different individuals.

**Course objectives/student learning outcomes:** By doing classical and molecular genetics experiments in this course, students are expected to learn how to interpret experimental data using basic genetic terms and Mendelian laws and understand the principles of RNAi and molecular genetics techniques.

**Pre-requisite:** BSC 1010 and BSC1011 and PCB 3063 with a minimum grade of C- or better – Graduate Level



- Oct 9, 2015: Finish Western blot  
**(Lab report 2 due and oral presentation)**
- Week 8 Oct. 14, 2015: Overview of 2<sup>nd</sup> half of class  
Introduction to single gene traits  
Introduction to *Drosophila*  
Oct. 16, 2015: Characterization of wild type and anatomical mutant flies
- Week 9 Oct. 21, 2015: Set up *Drosophila* test and mapping crosses  
Oct. 23, 2015: Analysis of larval polytene chromosomes
- Week 10 Oct. 28, 2015: GMO foods lab  
Isolate DNA from control and test food sources – set up PCR assays  
Oct. 30, 2015: Analyze of GMO PCR products via agarose gel electrophoresis  
**(Lab report 1 assignment)**
- Week 11 Nov. 4, 2015: Isolation of *Drosophila* genomic DNA  
Set up PCR for *Drosophila* genes  
Nov. 6, 2015: Analyze PCR products via agarose gel electrophoresis
- Week 12 Nov. 11, 2015: Score test and mapping crosses  
Nov. 13, 2015: Generate genetic map  
**(Lab report 1 due; Lab report 2 assignment)**
- Week 13 Nov. 18, 2015: Isolate human genomic DNA  
Nov. 20, 2015: PCR of human DNA repeat loci
- Week 14 Nov. 25, 2015: Purification of PCR products – send out for DNA sequence analysis  
Nov. 27, 2015: No class (Thanksgiving Break)
- Week 15 Dec. 2, 2015: Bioinformatic analysis of human DNA sequences  
Dec. 4, 2015: **(Lab report 2 due and oral presentation)**
- Week 16 **Final Exam Week**

### Assessment

In class experimental performance:	20%
Lab report:	50%
Lab report presentation:	20%
Attendance:	10%

## Assignment of Grades

Percentage	Grade
93 – 100%	A
90 – 92%	A <sup>-</sup>
87 – 89%	B <sup>+</sup>
83 – 86%	B
80 – 82%	B <sup>-</sup>
77 – 79%	C <sup>+</sup>
73 – 76%	C
70 – 72%	C <sup>-</sup>
67 – 69%	D <sup>+</sup>
63 – 66%	D
60 – 62%	D <sup>-</sup>
59% or less	F

### **Policy on absences, makeup tests, late work, and incompletes**

Absences for which a medical or court excuse is provided (professional letterhead required) will be recorded but not figured in the attendance grade. Likewise, one absence for which advance notice is given by phone or in person will not be figured in the attendance grade. Students will be given the opportunity to make up exams missed only during excused absences. Any significant tardy or early departure from class will be figured as one absence. Three absences will result in grade F. An Incomplete (I) will be given to students who, at the end of the course, have not completed all of the required course work due to exceptional circumstances, but otherwise have passing grades.

### **Students with Disabilities**

In compliance with the Americans with Disabilities Act (ADA), students with a disability who require reasonable accommodations 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) – and follow all OSD procedures.

### **Religious Accommodations**

Students who wish to be excused from course work, class activities or examinations must notify the instructor in advance of their intention to participate in religious observation and request an excused absence.

### **Code of Academic Integrity policy**

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.



## 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..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](tel:561-297-4549)  
[clarkc@fau.edu](mailto:clarkc@fau.edu)  
[www.med.fau.edu](http://www.med.fau.edu)

---

**From:** Michelle Cavallo <[MCAVALLO@fau.edu](mailto:MCAVALLO@fau.edu)>  
**Date:** Tuesday, September 23, 2014 at 12:52 PM  
**To:** Keith Brew <[KBREW@fau.edu](mailto:KBREW@fau.edu)>  
**Cc:** William Brooks <[wbrooks@fau.edu](mailto:wbrooks@fau.edu)>, Carolina Clark <[clarkc@fau.edu](mailto: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 29<sup>th</sup>, 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 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

**From:** [Kailiang Jia](#)  
**To:** [Michelle Cavallo](#)  
**Cc:** [William Brooks](#)  
**Subject:** RE: Your new course proposals  
**Date:** Monday, October 20, 2014 3:35:45 PM

---

Hi, Michelle,

Here is the information.

1. online materials for the course Advanced Genetics Lab

<http://www.wormbook.org/>  
<http://www.wormbase.org/>  
<http://flybase.org/>

2.. online materials for the course Advanced Molecular Genetics of Aging

<http://www.nia.nih.gov/health/featured/healthy-aging-longevity>  
[http://onlinelibrary.wiley.com/journal/10.1111/\(ISSN\)1474-9726](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1474-9726)  
<http://www.journals.elsevier.com/mechanisms-of-ageing-and-development/>

If additional information is required, please let me know. Thanks for your help.

Kailiang

---

**From:** Michelle Cavallo  
**Sent:** Monday, October 20, 2014 12:50 PM  
**To:** Kailiang Jia  
**Cc:** William Brooks  
**Subject:** Your new course proposals

Hi Kailiang,

The College Curriculum Committee reviewed your Advanced Genetics Lab (BSC 5038L) and your Advanced Molecular Genetics of Aging (BSC 5029) course proposals on Friday and they have approved them but they have suggested that you provide to the department a listing of the online course materials which your syllabi indicate substitute for textbooks associated with these courses. It was stated that the University level committees (the next level of review) may wish to see this information and could choose not to approve the courses until such time as those details are provided.

Please provide me with a list of those materials no later than Friday, October 24th and I will update the proposals and forward them back to the committee so that they may send them on to the University level review.

Thanks,

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