

Graduate Programs—NEW COURSE PROPOSAL¹

UGPC APPROVAL
UFS APPROVAL
SCNS SUBMITTAL
CONFIRMED _____
BANNER POSTED

Graduate Programs—NE	JSAL	CATALOG									
DEPARTMENT: BIOLOGICAL SCIENCES		College: Ch	HARLES E. SCHMIDT COLLEGE OF SCIENCE								
RECOMMENDED COURSE IDENTIFICATION: PREFIXBSC COURSE NU (TO OBTAIN A COURSE NUMBER, CONTACT MJENI COMPLETE COURSE TITLE: GENES AND DEV	NING@FAU.ED	в Сор	E (L or C)	EFFECTIVE DATE (first term course will be offered) SPRING 2017							
CREDITS 2:3 TEXTBOOK INFORMATION: ESSENTIAL DEVELOPMENTAL BIOLOGY – JONATHAN SLACK (3 RD EDITION)											
GRADING (SELECT ONLY ONE GRADING OPTION): REGULARR SATISFACTORY/UNSATISFACTORY											
Course Description, No More THAN THREE LINES: Students will become familiarized with the cellular and molecular mechanisms that underlie organismal development, including differential gene regulation, intercellular communication, fertilization, pattern formation, organogenesis, animal stem cells and cloning, evolution and development, sex determination, and developmental disorders.											
PREREQUISITES*:	TES*:		REGISTRATION CON	NTROLS (MAJOR, COLLEGE, LEVEL)*:							
GRADUATE LEVEL OR PERMISSION OF INSTRUCTOR				GRADUATE LEVEL OR PERMISSION OF INSTRUCTOR							
* PREREQUISITES, COREQUISITES AND REGISTRATION CONTROLS WILL BE ENFORCED FOR ALL COURSE SECTIONS.											
MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE: Ph.D. DEGREE OR GRADUATE-LEVEL DEGREE IN A RELATED FIELD, WITH SPECIALIZATION IN PERTINENT FIELDS, CONTINGENT UPON DEPARTMENT APPROVAL.											
Faculty contact, email and complete phone nu Catherine F. Trivigno trivigno@fau.edu 561-799-8514		Please consult and list departments that might be affected by the new course and attack comments. College of Medicine: Please see attached									
Approved by: Department Chair: College Curriculum Chair: College Dean: UGPC Chair: Graduate College Dean: UFS President: Provost:			Date	2.09.16	. Syllabus must be attached; see guidelines for requirements: www.fau.edu/provost/files/course syllabus.2011.pdf . 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:

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: BSC 6079:Genes and Development

Best Regards,

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

mate	rials may be viewe	ed on the UGPC w	ebsite prior to th	e meeting.		mittee meeting so	311111111
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Charles E. Schmidt College of Medicine 777 Glades Road Boca Raton, FL 33431 (561) 297-0706 Fax: (561) 297-2519

Thursday, October 30th, 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 BSC 4029- Genes and Development (undergraduate course) and BSC 6079- Genes and Development (graduate course), and does not have any objections. The courses do not contain any material that could constitute a conflict with our Biomedical Science Graduate program curriculum.

Sincerely,

Marc Kantorow, Ph.D.

Professor and Director of Graduate Programs

Charles E. Schmidt College of Medicine

Florida Atlantic University

Mare Huntrow

777 Glades Rd.

Boca Raton, FL 33431

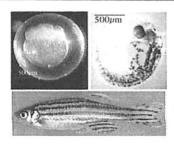
561-297-2910

mkantoro@fau.edu

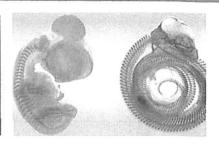
Genes and Development

Spring Semester 2017

Course Syllabus







http://www.pdn.cam.ac.u k!staff/lewis

http://\vww.hawaii.edu/malamalama/2009/02/development-returns-to-evolution-theory/

Course Information

Course Title:

Genes and Development (3 credits)

Course Number:

BSC 6079

Course Dates/Time:

January 13-May 6, 9:30 - 10:50 AM Wednesdays and

Fridays

Course Location:

Boca Raton Campus, TBA

Instructor:

Dr. Catherine Trivigno

Sanson Science Building Main Office (room 136)

Email: trivigno@fau.edu Phone: (561) 799-8514

Office hours: Wednesdays 8:20-9:20 AM and Fridays 11:00

AM-12:00 or by appointment

Course Description: This lecture course is open to advanced undergraduates and graduate students. In this course students will become familiarized with the cellular and molecular mechanisms that underlie organismal development. This will include discussion of specific developmental pathways and topics including differential gene

regulation, intercellular communication, fettilization, pattern formation, organogenesis, animal stem cells and cloning, evo/devo (evolution and development), sex determination, and developmental disorders. A variety of invertebrate and vertebrate experimental model systems will be discussed, including C. elegans, Drosophila, Xenopus, zebrafish, chick and mice. We will discuss both conceptual and experimental advances in developmental biology and the different methodologies that are currently available to developmental biologists.

Course objectives/student learning outcomes: Students will gain facility with the issues, concepts, and experimental approaches of historical and modern developmental biology. They will be able to integrate this knowledge into a wider framework of understanding the diversity and complexity of living organisms.

Course prerequisites: Students must be a graduate student or have permission of instructor. It is helpful to have completed undergraduate courses in Genetics, Biochemistry, and/or Molecular and Cell Biology.

Course evaluation methods: There will be a quiz or exam each week in this course (except for week 1). Please see the section on attendance below. More than one unexcused absence will result in an "F". Students may not make up any quiz or exam missed due to an unexcused absence or to arriving late for class.

Students taking the course for graduate credit must pelform additional work in the form of a presentation to the class. They will be graded on their performance in the following areas.

4 quizzes (out of 5, lowest quiz grade dropped) – 40% total 2 exams – 50% total One oral presentation to the class (TBA) – 10% total

Required Textbook:

Essential Developmental Biology, Jonathan Slack 3rd edition 2012 Wiley-Blackwell Press

ISBN#: 978-1-1180-2286-3

Tentative List of Topics (topics, timing, and order subject to change):

Week 1 Course Overview and Introduction -overview of developmental biology

Assignment- Read Ch. 1-2, study Powerpoint slides on Blackboard

Week2 Concepts in regulation of gene expression – transcription and translation, regulatory sequences, transcription factors, epigenetics

Assignment - Read Ch. 3, study Powerpoint slides on Blackboard

Week3 Developmental biology methodologies – microscopy, genetics, genomics/bioinformatics, comparative approaches

Assignment-Read Ch. 4, study Powerpoint slides on Blackboard

Week4 Classical and Experimental Embryology – worms vs. flies vs. frogs vs. chicks vs. mice

Assignment – Read Ch. 5 & 6, study Powerpoint slides on Blackboard

Week5 Transcription Regulation - The discovery of Hox genes

Assignment – Read Ch. 7 & 8, study Powerpoint slides on Blackboard

Week6 Signaling pathways-Notch, lateral inhibition, TGF-beta, etc

Assignment-Read Appendix 1, study Powerpoint slides on Blackboard

Week 7 Fettilization-gametogenesis and activation of the egg

Assignment – Read Ch. 19, study Powerpoint slides on Blackboard

Exam 1

WeekS Pattern Formation – segmentation in Drosophila; Dorsal/Ventral patterning of fly embryo; neural tube patterning

Assignment-Read Ch. 11 & 13, study Powerpoint slides on Blackboard

Week9 Nervous System Development-neural induction; neural stem cell formation; ASC genes, Notch pathway; neurons versus glia;

axonogenesis; synaptogenesis

Assignment – Read Ch. 14, find and start reading a research article for your presentation, study Powerpoint slides on Blackboard

Week 10 Muscle Development-mesoderm specification; myogenesis; muscle fiber formation and differentitation

Assignment – Read Ch. 15, work on research article, study Powerpoint slides on Blackboard

Week 11 Evolution and Development – the making of the fittest; Sex determination – comparison of methods in various organisms

Assignment – Read Ch. 22, work on presentation, study Powerpoint slides on Blackboard

Week 12 Stem Cells - embryonic, adult, induced

Assignment – Read Ch. 21, work on presentation, study Powerpoint slides on Blackboard

Week 13 Regeneration/Aging/Cloning - developmental plasticity

Assignment – Read Ch. 20, study Powerpoint slides on Blackboard

Week 14 Development and Medicine – genetic disorders of development; diagnoses and therapies

Assignment – Turn in evaluations of student talks, review for exam, study Powerpoint slides on Blackboard

Exam2

Policy on absences, religious accommodations, makeup tests, and incompletes

Students may not make up any quiz or exam missed due to an unexcused absence or to arriving late for class. Absences for which a medical or court excuse is provided within 48 hours of the absence (professional letterhead required) will be considered excused absences, and the student will be allowed to take a make-up exam or quiz if appropriate. Taking a vacation is not considered an excused absence — it is not acceptable for students to plan vacations that interfere with a six-week course such as this one. Reasonable accommodation will also be made for students participating in a religious observance. Students will be given the opportunity to make up work missed only during excused Absences. An Incomplete (I) may 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 who require reasonable accommodations due to a disability to properly execute coursework must register with the Office of Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses-Boca Raton, Davie, and Jupiter, however, disability services are available for students on all campuses.

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. http://www.fau.edu/ctl/4.001 Code of Academic Integrity.pdf