

FLORIDA ATLANTIC UNIVERSITY™

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Graduate Programs—NEW COURSE PROPOSAL

DEPARTMENT NAME:
Basic Science

COLLEGE OF:
Charles E. Schmidt College of Biomedical Science

RECOMMENDED COURSE IDENTIFICATION:
 PREFIX _____ PCB _____ COURSE NUMBER 6235 _____ LAB CODE (L. or C) _____
 (TO OBTAIN A COURSE NUMBER, CONTACT ERUDOLPH@FAU.EDU)
COMPLETE COURSE TITLE Molecular Basis of Human Cancer

EFFECTIVE DATE
 (first term course will be offered)
 Summer 2011

CREDITS: 3

TEXTBOOK INFORMATION:
 The *Biology of Cancer* by Weinberg, Robert A. Garland Science ISBN 0-8153-4076-1 – Recommended.
Molecular Cell Biology by Lodish, et al. WH Freedman & Co ISBN 10: 0-7167-7601-4 – Recommended.

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

COURSE DESCRIPTION, NO MORE THAN 3 LINES:
 Molecular Basis of Human Cancer covers current concepts and knowledge of cancer. This course will explore the molecular and cellular mechanisms underlying cancer progression with the aim to understand the processes of tumorigenesis.

<p>PREREQUISITES W/MINIMUM GRADE:* PCB 4023 Molecular and Cell Biology or BCH 3033 Biochemistry or PCB 6207 Adv. Cell Physiology. Min grade: B-</p>	<p>COREQUISITES: N.A.</p>	<p>OTHER REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL): Graduate Students Only</p>
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PREREQUISITES, COREQUISITES & REGISTRATION CONTROLS SHOWN ABOVE WILL BE ENFORCED FOR ALL COURSE SECTIONS.
 * DEFAULT MINIMUM GRADE IS D-

MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE:
Ph.D.

Other departments, colleges that might be affected by the new course must be consulted. List entities that have been consulted and attach written comments from each. Department of Biology

Michael Lu, Ph.D., mlu3@fau.edu, tel: 297-0892

Faculty Contact, Email, Complete Phone Number

<p>SIGNATURES</p> <p>Approved by: _____ Department Chair: _____ College Curriculum Chair: _____ College Dean: _____ UGPC Chair: _____ Dean of the Graduate College: _____</p>	<p>Date: 3-16-10 3-16-10 3-16-10</p>	<p>SUPPORTING MATERIALS</p> <p>Syllabus—must include all details as shown in the UGPC Guidelines. Written Consent—required from all departments affected. Go to: http://graduate.fau.edu/gpc/ to download this form and guidelines to fill out the form.</p>
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Email this form and syllabus to diamond@fau.edu and eqirjo@fau.edu one week **before** the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website by committee members prior to the meeting.
 FAUnewcrseGrad—Revised January 2010

Molecular Basis of Human Cancer

Course Number: PCB 6235

Prerequisites: Advanced (upper division) Molecular and Cellular Biology, Biochemistry, Cell Physiology

Co-requisites: None

Instructor: Michael Lu, Ph.D.

Office: College of Biomedical Science BC 71, Rm 329

Tel: 561-297-0892

Email: mlu3@fau.edu

Textbooks: No textbook required.

Bibliography:

The Biology of Cancer by Robert A. Weinberg ; 1st Ed. 2007, Garland Science Publisher, Taylor & Francis Group, New York, N.Y. ISBN 0-8153-4076-1

Molecular Cell Biology by Lodish, et al. WH Freedman & Co ISBN 10: 0-7167-7601-4

Original research and review Journal articles:

Anna C. Schinzel, William C. Hahn. *Oncogenic transformation and experimental models of human cancer*. *Frontiers in Bioscience*, 13: 71, 2008.

Douglas Hanahan and Robert A. Weinberg. *Hallmarks of Cancer*. *Cell*, 100: 57, 2000.

Thomas Kuilman and Daniel S. Peeper. *Senescence-messaging secretome: SMS-ing cellular stress*. *Nature Reviews Cancer*, 9: 81, 2009

Fabrizio d'Adda di Fagagna. *Living on a break: cellular senescence as a DNA-damage response*. *Nature Review Cancer*, 8: 513, 2008.

Carlos Sonnenschein, Ana M. Soto. *Theories of carcinogenesis: An emerging perspective*. *Seminar in Cancer Biology*, 18:372, 2008.

Ezio Laconi, Silvia Doratiotto, Paolo Vineis. *The microenvironments of multistage carcinogenesis*. *Seminar in Cancer Biology*, 18: 322, 2008.

Susana A. Godinho, Mijung Kwon, David Pellman. *Centrosomes and cancer: how cancer cells divide with too many centrosomes*. *Cancer Metastasis Rev*, 28: 85, 2009.

Ioannis N. Mammias, George Sourvinos , Athena Giannoudis , Demetrios A. Spandidos. *Human Papilloma Virus (HPV) and Host Cellular Interactions*. *Pathol. Oncol. Res.*, 14: 345, 2008.

Marcos Malumbres, Mariano Barbacid. *Cell cycle, CDKs and cancer: a changing paradigm*. Nature Review Cancer 9: 153, 2009.

Donald E. Ingber. *Can cancer be reversed by engineering the tumor microenvironment?* Seminar in Cancer Biology, 18: 356, 2008.

Emmanouil Fokas, Rita Engenhardt-Cabillic, Kiriakos Daniilidis, Frank Rose & Han-Xiang An. *Metastasis: the seed and soil theory gains identity*. Cancer Metastasis Rev., 26: 705, 2007.

Femke Hillen, Arjan W. Griffioen. *Tumour vascularization: sprouting angiogenesis and beyond*. Cancer Metastasis Rev., 26: 489, 2007.

James M. Pipas. *SV40: Cell transformation and tumorigenesis*. Virology, 384: 294, 2009.

Thomas A. Rando. *The Immortal Strand Hypothesis: Segregation and Reconstruction*. Cell, 129:1239, 2007

Daniela Hoelle, Ivan Dikic. *Targeting the ubiquitin system in cancer therapy* Nature. 458: 438, 2009.

Toren Finkel, Manuel Serrano & Maria A. Blasco. *The common biology of cancer and ageing*. Nature, 448: 767, 2007.

Mahmut Yilmaz, Gerhard Christofori. *EMT, the cytoskeleton, and cancer cell invasion*. Cancer Metastasis Rev., 28: 15, 2009.

Britta Weigelt, Mina J. Bissell. *Unraveling the microenvironmental influences on the normal mammary gland and breast cancer*. Seminar in Cancer Biology, 18: 311, 2008.

Michal Baniyash, *Chronic inflammation, immunosuppression and cancer: New insights and outlook*. Seminar in Cancer Biology, 16: 80, 2006.

Course description:

Molecular Basis of Human Cancer covers current concepts and knowledge of cancer. This course will explore the molecular and cellular mechanisms underlying cancer progression with the aim to understand the processes of tumorigenesis. Topics include: Overview of the Hallmarks of Cancer, Oncogenes, Tumor Suppressors, Genomic Integrity, Tumor Microenvironment, Epithelial Mesenchymal Transition, Angiogenesis, Inflammation and Current Cancer Treatment.

Instructional objectives:

The aim of the course is to educate the students on the current advances in the field of cancer biology. The goal is to promote students' proficiency in knowledge of evolving concepts and changing dogmas of modern cancer research.

Course Schedule and Topics (tentative schedule not include tests):

Meet weekly on Tuesday/Thursday 10:30 am -12:00 noon

Week 1: Overview:
Membrane, cell organelles, cytoskeleton and cell junctions

Week 2: Signal transduction

Week 3: Oncogenes and Transformation
Oncogenes and Viral Oncogenesis

Week 4: Cell growth (de)regulation

Week 5: Tumor Suppressor
Cell cycle control, tumor suppressor genes

Week 6: Senescence and Cancer

Week 7: Genomic Integrity (Caretaker genes)
Genotoxicity, DNA damage repair

Week 8: DNA Damage Response

Week 9: Epithelial-Mesenchymal Transition (EMT)
Invasion and metastasis

Week10: Tumor Microenvironemnt
Cancer associated stromal cells

Week 11: Angiogenesis and Inflammation

Week 12: Current Cancer Treatment and Therapeutic Targets

Method of Instruction: The course is structured by partitioning classroom lectures with student participated discussions. The lectures will be delivered as listed topics each week. Each week there will be assignments of specific journal article(s), mostly reviews, related to the subject topic of the week for reading and discussion. The success of this class is dependent upon student participation in the discussions. To facilitate this participation, students are required to submit by email one question pertaining to each assigned paper as homework assignment. The questions are due by noon on the Monday before class. These questions may be about technical aspects or general concept discussed in the paper. We will use these questions to stimulate class discussions. The main goal of this exercise is to familiarize you with reading and analyzing scientific literature in the area of cancer biology. You will practice critical reading and discussion of scientific papers and learn to evaluate data and methodologies.

Assessment Procedures:

Students will be graded on attendance, homework assignment and participate in classroom discussions. In addition, there will be a written midterm and a final exam covering the lectures topics and reading assignments.

Final grades will be assigned based on the following criteria:

30% attendance and participation

30% Homework assignment

20% Midterm written test

20% Final topic oral presentation

Grading criteria:

90 - 100% = A

80 - 89% = B

70 - 79% = C

60 - 69% = D

0 - 59% = F

Academic Honor Code:

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.

The FAU Honor Code requires a faculty member, student, or staff member to notify an instructor when there is reason to believe an academic irregularity is occurring in a course. The instructor must pursue any reasonable allegation, taking action where appropriate. The following constitute academic irregularities:

1. The use of notes, books or assistance from or to other students while taking an examination or working on other assignments, unless specifically authorized by the instructor, are defined as acts of cheating.
2. The presentation of words or ideas from any other source as one's own is an act defined as plagiarism.
3. Other activities that interfere with the educational mission of the University.

For full details of the FAU Honor Code, see University Regulation 4.001 at www.fau.edu/regulations/chapter4/4.001_Honor_Code.pdf.

Students With Disabilities

In compliance with the American Disabilities Act (ADA), students who require special 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, MOD 1 (954-236-1222); in Jupiter, SR 117 (561-799-8585); or at the Treasure Coast, CO 128 (772-873-3305) – and follow all OSD procedures.

Julie Sivigny

From: David Binninger [binninge@fau.edu]
Sent: Wednesday, March 17, 2010 11:47 AM
To: Julie Sivigny
Cc: Rodney Murphey
Subject: Fwd: Biomedical Science New Course Proposals

Good morning,

I circulated the syllabi for the new courses listed in your e-mail (see below) to the faculty who could make comments. I did not receive any responses that raised questions or noted a significant overlap with any of our graduate courses. Please let me know if you have any questions.

I hope this is helpful and good luck with the remainder of the process toward approval of the courses.

Regards,
David

David M. Binninger, Ph.D.
Associate Professor and Associate Chair
Department of Biological Science
and
Center for Molecular Biology and Biotechnology
Florida Atlantic University
777 Glades Road
Boca Raton, FL 33431 USA
Phone: (561) 297-3323
FAX: (561) 297-2749

Begin forwarded message:

From: Julie Sivigny <jsivigny@fau.edu>
Date: March 15, 2010 1:38:27 PM EDT
To: 'David Binninger' <binninge@fau.edu>
Subject: **Biomedical Science New Course Proposals**

Dear Dr. Binninger,
Thank you for your assistance with this process. We are submitting a total of 10 new course proposals and 2 changes. All syllabi were forwarded to Dr. Murphey but in multiple batches so if you are missing any please let me know and I'll send to you immediately.

Biomedical Science New Course Proposals:
Host Defense & Inflammation – Dr. Yoshimi Shibata
Molecular Neuropsychopharmacology – Drs. Isgor and Tao
Macromolecules and Human Disease – Drs. Brew and Li
Adult Neurogenesis – Dr. Jianning Wei
Molecular Basis of Disease & Therapy – Dr. Caputi

3/17/2010

Tumor Immunology – Dr. Vijaya Iragavarapu
Molecular Genetics of the Cell – Dr. Kantorow
Molecular Basis of Human Cancer – Dr. Lu
Problem-based Immunology – Dr. Nouri-Shirazi
Fundamentals of General Pathology – Dr. Levitt

The integrated morphology courses will be processed as changes. We previously offered two 3-credit courses: Human Gross Anatomy – Trunk and Human Gross Anatomy – Extremities. We are changing these to 4-credit courses with the titles *Integrated Morphology I and II* taught by Drs. Willis Paull, Rainald Schmidt-Kastner and Deborah Cunningham.

The graduate college submission deadline is Wednesday March 17th at noon. I apologize for the lateness of some of these requests and appreciate your effort to assist us.

Please let me know if I can provide any additional information.
Thank you.
Julie

Julie A. Sivigny
Academic Program Specialist
Charles E. Schmidt College of Biomedical Science
Florida Atlantic University
(561) 297-2216

From: David Binninger [<mailto:binninge@fau.edu>]
Sent: Monday, March 15, 2010 11:16 AM
To: Julie Sivigny
Cc: Rodney Murphey; Jay Lyons
Subject: Fwd: Biomedical Science New Course Proposal - Macromolecules & Human Disease

Good morning Julie,

I forwarded the syllabi for the new courses to the appropriate faculty last week. It's my opinion that there will not be any issues or conflicts. So far, I have had only one response and that was that there were no concerns. Please confirm the full list of new courses and when you need a statement from me.

I hope this is helpful and please let me know if you have any questions.

Regards,
David

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and
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