

# FLORIDA ATLANTIC UNIVERSITY™

## Graduate Programs—COURSE CHANGE REQUEST

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

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|--|--|
| DEPARTMENT: N/A  | COLLEGE: COLLEGE OF MEDICINE   |
| COURSE PREFIX AND NUMBER: BMS 6033   | CURRENT COURSE TITLE: FUNDAMENTALS OF BIOMEDICAL SCIENCE 3   |
| CHANGE(S) ARE TO BE EFFECTIVE (LIST TERM): FALL 2012   | _____ TERMINATE COURSE (LIST FINAL ACTIVE TERM):   |
| CHANGE TITLE TO:<br><br>CHANGE PREFIX FROM:                      TO:<br><br>CHANGE COURSE NO. FROM:                      TO:<br><br>CHANGE CREDITS FROM:    6                      TO:    7<br><br>CHANGE GRADING FROM:                      TO:<br><br>CHANGE DESCRIPTION TO: | CHANGE PREREQUISITES/MINIMUM GRADES TO*:<br><br><br>CHANGE COREQUISITES TO*:<br><br><br>CHANGE REGISTRATION CONTROLS TO:<br><br><br>*Please list both existing and new pre/corequisites, specify AND or OR, and include minimum passing grade. |
| <b>Attach syllabus for ANY changes to current course information.</b>  |  |
| Should the requested change(s) cause this course to overlap any other FAU courses, please list them here.  | Departments and/or colleges that might be affected by the change(s) must be consulted and listed here. Please attach comments from each.   |

Faculty contact, email and complete phone number: Gary Rose, M.D.: Associate Professor of Clinical Biomedical Science  
 BC-119: 561 297-0675; grose@fau.edu

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| <b>Approved by:</b><br>Department Chair: <u>Singday Heron</u><br>College Curriculum Chair: <u>Ana Maria Orando</u><br>College Dean: <u>Michael</u><br>UGPC Chair: _____<br>Graduate College Dean: _____ | <b>Date:</b><br><u>3/5/12</u><br><u>3/5/12</u><br><u>3-5-12</u><br>_____<br>_____ | <b>ATTACHMENT CHECKLIST</b><br><br>♦Syllabus (see guidelines for requirements: <a href="http://www.fau.edu/graduate/facultyandstaff/programscommittee/index.php">http://www.fau.edu/graduate/facultyandstaff/programscommittee/index.php</a> )<br><br>♦Written consent from all departments affected by changes |
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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.

# FLORIDA ATLANTIC UNIVERSITY CHARLES E. SCHMIDT COLLEGE OF MEDICINE COURSE SYLLABUS

## GENERAL INFORMATION

**Course Number:** BMS 6033  
**Online:** Blackboard Learning System  
**Term:** Fall 2012  
**Course Title:** Fundamentals of Biomedical Science 3  
**Course Director:** Gary Rose, M.D.  
**Office:** 119  
**Office Hours:** 12:00- 2:00 PM  
**Telephone:** 561-297-0675  
**E-Mail:** [grose@fau.edu](mailto:grose@fau.edu)

**Course Support:** Abner Alexis  
**Office:** 135A  
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## COURSE DESCRIPTION

The FBS Course series (FBS 1, FBS 2, FBS 3) is designed to provide students with a broad foundation in critical biomedical science subject areas, including biochemistry, molecular biology, cell biology, genetics, microbiology, immunology, pharmacology, pathology, histology, physiology, anatomy, and embryology. FBS 3 continues the themes introduced and developed in FBS 1 and FBS 2. FBS 3 focuses on viral microbiology, immunology, inflammation, neoplasia, tissue repair, as well as, histology, embryology, and anatomy.

## COURSE OBJECTIVES

After completing this course the student will:

- Describe the physical and chemical properties of viruses
- Understand common unique characteristics of viruses as compared to other microorganisms
- Understand the basis for the modern classification of viruses
- Understand the steps of the reproductive cycle of RNA and DNA viruses
- Review the principles of cultivation, assay and laboratory diagnosis of viruses
- Be familiar with the molecular basis of viral pathogenesis
- Describe latent and persistent viral infections
- Identify viruses that are capable of stimulating cell growth and induce oncogenic transformation
- Explain T cell activation and cell-mediated immune response
- Explain role of natural killer cells in immune response and how they carry out their functions
- Understand the roles of essential immunological factors causing and regulating type I – IV hypersensitivity reactions
- Describe common sources of allergens, types of allergens, and properties of allergens.
- Discuss local and systemic allergic reactions.
- Describe mechanisms of drug-induced allergies
- Discuss therapies for allergies and their relevance to key steps in the allergic immune response
- Define tests for allergies (skin tests; RAST test).
- Describe major and minor histocompatibility processes

- Understand the molecular basis of direct and indirect allograft recognitions, as well as the the limitations associated with xenotransplantation
- Describe the types and mechanisms of clinical rejection (hyperacute, acute, chronic and graft-versus-host reaction)
- Describe the mechanisms of self-tolerance
- Describe the tissue-typing techniques (serological, cellular and molecular)
- Understand the mechanisms of action of immunosuppressive drugs
- Describe the developmental, microscopic, and gross anatomy of the male reproductive system
- Describe the developmental, microscopic, and gross anatomy of the female reproductive system
- Describe the developmental, microscopic, and gross anatomy of the digestive system
- Describe the developmental, microscopic, and gross anatomy of the urinary system
- Describe the important types of macronutrients.
- Explain the processes involved in the digestion of carbohydrates, proteins, lipids, and nucleic acids
- Explain the role of digestive enzymes in the breakdown of biomolecules.
- Describe the important types of micronutrients.
- Describe the structures and functions of vitamins, and explain the distinctions between water-soluble vitamins and fat-soluble vitamins
- Understand the general principles of inflammation, including neurogenic, vascular, cellular and chemical events
- Be able to compare and contrast vascular, cellular, and stromal characteristics of acute and chronic inflammation
- Explain the basic forms of tissue repair
- Describe the cause and appearances of tissue edema, congestion and hemorrhage
- Describe the sequence of events leading to thrombosis
- Describe the gross and microscopic appearances of thrombi
- Outline the sequence of events in coagulation and indicate what laboratory tests can be used to determine abnormalities of coagulation
- Describe etiologies, appearances, and consequences of infarction
- Describe the process of embolization and when it occurs
- Understand the over-arching fundamental characteristics of carcinogenesis
- Review the biologic and molecular characteristics of the cell cycle, including cell cycle regulators, phases, and checkpoints
- Be familiar with the most common physiologic alterations found in malignant transformation , including self-sufficiency in growth signaling, the role of tumor suppressor genes, evasion of apoptosis, defects in DNA repair, telomerase, sustained angiogenesis, the ability to invade and metastasize, escape from immunity
- Define what an oncogene is and how oncogenes function in neoplasia
- Know common proto-oncogenes and oncogenes and their roles in neoplasia.
- Understand the mechanisms of carcinogenic genetic alterations, structural and functional, including point mutations and deletions, chromosomal rearrangements, and gene amplification
- Understand the current multi-step molecular model of carcinogenesis, including the roles of “gatekeeper” and “caretaker” genes, and tumor progression
- Know several specific examples of different types of carcinogenesis, including chemicals, radiation, and viruses
- Understand the classification, histologic diagnosis, grading and staging of neoplasms
- Be familiar with hereditary neoplastic disorders
- Explain invasion and metastasis
- Review tumor immunology
- Define the paraneoplastic manifestations of cancer
- Review cancer epidemiology and prevention
- Describe the anatomy of the thigh and leg
- Describe the anatomy of the foot and joints of the lower limbs

## **EVALUATION**

**Summative Assessment (Grading):** The FBS 3 course will be graded as: S (Satisfactory) or U (Unsatisfactory)

The course grade will have two components (exams & quizzes, and PBL). **In order to pass the course with S grade, the student will be required to pass both components.**

### Component 1

The first component consists of exams and quizzes. Exams 1 and 2 are multiple choice tests covering objectives in lectures, PBL cases and problem sessions. The percentage contribution to total points will be distributed as follows:

|                         |             |
|-------------------------|-------------|
| Exam 1                  | 25%         |
| Exam 2                  | 45%         |
| Anatomy exams & quizzes | 30%         |
| <b>Total</b>            | <b>100%</b> |

A passing grade for this component will be  $\geq 75\%$  of total points possible.

### Component 2

The second component is PBL. Grading for PBL will consist of a narrative facilitator assessment at the end of the course, and will be given by the facilitators as "satisfactory" (S) and "unsatisfactory" (U) without assigned numerical points. The facilitators will provide notations as to whether the student's academic and professional performance is on the level of S or U based on the student's performance the following areas:

- Research skills;
- Reasoning;
- Professionalism: interpersonal skills;
- Professionalism: work habit.

**Formative Assessment (not graded):** Students will receive narrative feedback from their facilitator and the other students in their PBL group mid-course, and narrative feedback from the other students in both PBL and their Anatomy Dissection Group at the end of the course. Each student is expected to complete feedback forms for his/her peers.

## **COURSE INFORMATION**

### Attendance Policy

Professionalism is a major component of the FAU College of Medicine's curriculum. Therefore, medical students as future professionals should conduct themselves appropriately in all curricular activities, including classroom work, laboratory work, and clinical experiences. The professionalism of a medical student includes arriving to educational activities on-time, using laptop computers only for course work during the educational activity, and minimizing disruptions to the educational exercise.

In accordance with the Student Handbook, students are accountable and personally responsible for attending all scheduled educational activities for FBS 3, arriving on time and prepared. It is mandatory for students to attend all PBL sessions, clinical case or problem sessions, labs, and examinations. Students are expected to attend all didactic sessions, and are required to arrive in the classroom on time and to stay to the end of the session. In general, makeups will not be provided to non-assessment activities. Makeup assessments will be provided to students only in the case of a true emergency.

If a student has an emergency that prevents him/her from attending a scheduled activity, he/she is to follow the emergency notification procedure ([http://med.fau.edu/medicine/student\\_affairs/pdfs/Student\\_Handbook.pdf](http://med.fau.edu/medicine/student_affairs/pdfs/Student_Handbook.pdf)). If possible, the student should also call and leave a message with the course director or group facilitator. Attendance, including tardiness, is part of the evaluation for professionalism in FBS 3. Poor evaluations may result in decreased grades and, in severe cases, referral to the Medical Students Promotions & Professional Standards Committee.

### FAU COM Policy for the Provision of Health Care Services to Students

Faculty members and residents or fellows with academic assessment/evaluation responsibilities for students are precluded from evaluating any students who are also their patients, because of dual-relationship and conflict of interest issues. The conflict created by this dual role could affect both the quality of medical care and the content of such evaluations in the following way:

- A student-patient might be less likely to report a sensitive medical issue (e.g., drug abuse) to his/her physician if that physician will be providing an evaluation or grade for the student; and
- A faculty member's evaluation or grade (which could include some subjective elements) could potentially be, despite the evaluator's commitment to neutrality, positively or negatively affected as a result of the therapeutic relationship.

In instances of pre-existing doctor-patient/student relationships, the physician must discuss with the student the potential for a dual relationship and inform the student that he/she will recuse him- or herself from any situation in which a formal evaluation is required.

In emergent situations or other instances in which an appropriate referral is not available, a student can seek the care of any faculty member or resident. In this circumstance as well, the physician must discuss with the student the potential for a dual relationship and recuse him or herself from any situation in which a formal evaluation is required.

At the beginning of each course or clerkship, the Curriculum Office provides students and clinical faculty with small group assignments as a routine part of the scheduling process. The Office will notify the students and faculty that they should report any potential conflict of interest with each other that might necessitate a change in small group assignments. The type of conflict will generally not be disclosed, in the interest of privacy. The course administrator(s) will be instructed to facilitate such requests without inquiring as to the nature of the conflict of interest.

Regarding the psychiatry clerkship, information about potential teacher/physician dual relationship will be provided to the medical students on the first day. Students are told that if they have seen a clinician at the facility as a patient, they should notify the curriculum coordinator who will modify the schedule to avoid activities with the clinician in question, without alerting the site director as to the purpose of the schedule change.

### Religious Observance (Adapted from the FAU Policy)

The College of Medicine recognizes that students, faculty and staff observe a variety of religious faiths and practices. Although many religious holidays are observed with time off, a few of the religious days of observance may be part of the academic calendar. The College respects the religious beliefs and practices of its students and seeks to accommodate them within the requirements of the academic schedule. As a result, a student who must be absent from a class requirement will not be penalized. Students who anticipate absence should notify the OSA and the supervising faculty in advance. The instructor will provide a reasonable opportunity to make up such excused absences. Any student who feels aggrieved regarding religious accommodations may present a grievance to the Director of Equal Opportunity Programs. Any such grievances will follow Florida Atlantic University's established grievance procedure regarding alleged discrimination. The College will follow the established FAU policy regarding absences due to personal observances of religious holidays.

To review the policy, access the Leave of Absence Policy: [http://www.fau.edu/policies/files/PM76\\_OCR.pdf](http://www.fau.edu/policies/files/PM76_OCR.pdf)

### Disability Support Services

In compliance with the Americans with 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) located in Boca Raton – SU133 (561-297-3880 and follow all OSD procedures.

### Honor Code

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:

1. *The Policy on Academic, Professional and Behavioral Requirements and Standards governing the College of Medicine*
2. *Oath of Academic and Professional Conduct for Students in the College of Medicine*
3. [http://www.fau.edu/regulations/chapter4/4.001\\_Honor\\_Code.pdf](http://www.fau.edu/regulations/chapter4/4.001_Honor_Code.pdf).

### **REQUIRED TEXT/READINGS**

| Title  | Author(s)                              | Publisher                       |
|--|--|---------------------------------|
| Basic and Clinical Pharmacology 11th edition (2009)                          | Katzung                                | McGraw-Hill Companies           |
| Lippincott's Illustrated Reviews 4th Edition, 5th Edition (2010)             | Champe, Harvey and Ferrier,            | Lippincott Williams and Wilkins |
| Medical Microbiology 6th Edition; Chapter 19, 22, 23 and 31                  | Murray, Rosenthal, Kobayashi & Pfaller | Elsevier                        |
| The Immune System 3rd Edition: Chapters 1-3, 6-9                             | Parham                                 | Garland Science                 |
| Genetics and Medicine, 7th Edition; Chapter 5, p. 56-57<br>Chapter 7, p. 106 | Thompson & Thompson                    | Saunders                        |
| Robbins & Cotran Pathologic Basis of Disease; 8th Edition (2010)             | Kumar, Abbas and Fausto                | Saunders                        |
| Medical Physiology; 2nd Edition (2008)                                       | Boron and Boulpaep                     | Elsevier                        |
| Essential Clinical Anatomy; 4th Edition (2010)                               | Moore, Agur and Dalley                 | Lippincott Williams and Wilkins |
| Histology: A Text and Atlas; 6th Edition (2010)                              | Ross and Pawlina                       | Lippincott Williams and Wilkins |

