

**BMS 6204 MEDICAL BIOCHEMISTRY & GENETICS
SPRING 2010**

Course Director:

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Office hours: (Tues - Wed: 10:30-12:00 and by appointment)

Course Description and Components

Using a clinical presentation and cased-based approach, this course will explore the normal mechanisms that regulate all human biochemical processes and are responsible for the biochemical and genetic basis of disease. Topic areas to be covered include:

- *Genetic Diseases: Structure and Function of Genetic Material*
- *Cancer: Molecular Mechanisms of Development & Treatment*
- *Disorders of Protein Structure & Function*
- *Disruptions in Energy Metabolism: Biochemical Mechanisms & Clinical Outcomes*
- *Applying Biochemical & Molecular Knowledge: Clinical Problems & Current Biochemical Answers*

Each class will begin with a clinical presentation, followed by the biochemical and genetic information needed to understand normal mechanisms and diagnose the disorder. The biochemical and genetic basis of treatment options will also be explored for clinical disorders presented. Small group session will give students the opportunity to apply and extend lecture material to additional clinical cases, use medical informatics resources, and work as a team to confront clinically relevant biochemical and genetic issues.

General Schedule:

See Blackboard and Outlook calendar for detailed, daily schedule

Monday:	Lecture 1:00-1:50	
Tuesday:	Lecture 1:00-1:50;	Small groups: 2:00-2:50
Wednesday:	Lecture: 1:00-1:50	
Thursday:	Lecture 1:00-1:50	Optional Q and A: 2:00-3:00
Friday:	Quiz: 1:00-1:20	Lecture: 1:30-2:20

Block Exam Dates (Friday mornings): Jan 29, Feb 26, April 2, April 23
NBME Exam Date: April 29

Course Objectives and Goals

Educational Objectives

1. This course will provide the foundation for producing graduates who are able to utilize fundamental information about biochemistry and genetics in second year courses as well as later clerkships, graduate medical education, and clinical practice.
2. Students will demonstrate an ability to apply their knowledge of the biochemical and genetic bases of common or representative diseases, including their symptoms and treatments.
3. Students will demonstrate a knowledge of biochemical and genetic systems that enables them to evaluate and take advantage of new advances in diagnostic tools and treatment options as they are developed.
4. Student small-group learning experiences will teach students to work effectively and professionally with colleagues to use biochemical and genetic information to solve difficult clinical problems.

Knowledge Objectives

5. Recognize the scientific bases of health, disease, and medicine to common and high impact medical conditions in contemporary society.
6. Describe the function of the healthy human body at the biochemical and molecular levels.
7. Recognize and discuss the implications of genetic and biochemical alterations that are seen in various diseases and conditions.
8. Describe the role of environment in the expression of genes, function of biochemical processes, and human health and disease.
9. Describe basic clinical science principles needed to analyze and solve problems related to the diagnosis, treatment, and prevention of diseases related to abnormal genetic and biochemical function.

Skills

10. Demonstrate the ability to evaluate a patient's medical problems and to formulate accurate hypotheses to serve as the basis for making diagnostic and treatment decisions.
11. Demonstrate the ability to acquire new information and data and to critically appraise its validity and applicability to one's professional decisions, including the application of information systems technologies for support of clinical decision-making.
12. Demonstrate the ability to work professionally and effectively with colleagues to enhance clinical decision making.

Attitudes/Behaviors

13. Demonstrate professionalism and high ethical standards in all aspects of medical practice, specifically competence, honesty, integrity, compassion, respect for others, professional responsibility and social responsibility.

The Institutional Learning Objectives relevant for Clinical Physiology Objectives relate to the FSU COM competency domains as follows:

Competency Domain	Description of Domain	Biochemistry Objective
Patient Care	Students must be able to appropriately engage and evaluate patients, developing and communicating differential diagnoses and initial management plans for patients who present with common diseases/ conditions or requests for health maintenance services. This domain involves building professional relationships with patients and other health care professionals, gathering appropriate clinical information, analyzing and processing this information, identifying likely diagnoses, and, creating an initial plan for appropriate diagnostic and therapeutic interventions.	2 3 7 9 10 11 12

<p style="text-align: center;">Medical Knowledge</p>	<p>Students must be able to explain the basis for medical practice at the molecular, cellular, organ, whole body, environmental and psychosocial levels for states of health and disease based upon current understanding and emerging advances in contemporary medicine. Students must be capable of using this information to diagnose, manage and present the common health problems of individuals, families, and communities. Students should be able to develop a differential list, obtain additional investigations, choose and implement interventions with consultation and referral as needed. In addition, students must be able to propose a diagnosis, analyze the outcomes of interventions, utilize prevention strategies, monitor patient progress, share information with others, and adjust therapy according to results.</p>	<p>1 2 3 5 7 8 9 10 11</p>
<p style="text-align: center;">Practice-Based Learning</p>	<p>Students must be able to investigate and evaluate patient care practices, appraise and assimilate scientific evidence to improve patient care practices. Students must: 1) analyze practice experience using a systematic methodology; 2) locate, appraise and assimilate evidence from scientific studies related to their patients' health problems; 3) obtain and use information about patients population; 4) apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness; 5) use information technology to manage information and access on-line medical information in support of their own education and the learning of other students.</p>	<p>1 5 9 10 11</p>
<p style="text-align: center;">Interpersonal & Communication Skills</p>	<p>The ability to engage and communicate with a patient and to build a physician-patient relationship for the purposes of information gathering, guidance, education, and support. This competency includes the ability to interact with patients and their families under a broad range of personal and clinical circumstances. It necessarily includes the ability to also build <i>effective</i> relationships with peers, teachers, healthcare professionals, and others who may be involved in the care of patients and in the education thereof.</p>	<p>4 12</p>
<p style="text-align: center;">Professionalism</p>	<p>Students must recognize the powerful impact of their professional attitudes and behavior on others and consistently demonstrate high standards of excellence, duty, and accountability to the patient. Students must be responsible, reliable, dependable, and will demonstrate integrity, honesty, courtesy and self-discipline in both the classroom and the clinical setting. Students must approach the practice of medicine with an awareness of personal limits, strengths, weaknesses and vulnerabilities, while working to find ways to overcome and adapt to them: establishing an appropriate balance for personal and professional commitments, setting clear goals for lifelong learning, exploiting new opportunities for intellectual growth and professional enlightenment; and applying knowledge gained to the practice of medicine. The domain encompasses respect for patient rights and privacy in accord with the inherent value in the humanity of all patients, emphasizing the importance of rigorous adherence to established policies while maintaining an awareness of ethical and legal issues in medical practice.</p>	<p>12 13</p>
<p style="text-align: center;">Systems-Based Practice</p>	<p>Students must demonstrate an awareness of the larger context and system of health care including the types of medical practice and delivery systems, cost effective health care and resource allocation that does not compromise the quality of care. Students must be advocates for quality patient care and must work in interprofessional health care teams to assess, coordinate, enhance and improve patient safety and patient care.</p>	<p>NA</p>

Course Schedule

Check times for course events in the course schedule that is posted on the Blackboard Web Site (<http://campus.fsu.edu>) and Outlook calendar.

Required Learning Materials:

Meisenberg, G. and Simmons, W.H. *Principles of Medical Biochemistry*. 2nd Edition. Mosby Elsevier, Philadelphia, 2006.

Evaluation of Student Performance and Grading:

There will be 4 integrated examinations (Physiology, Biochemistry, Doctoring 103). There will be 50 biochemistry questions on each exam. Questions will be one-best-answer LCME Step I examination format. It is anticipated that each test will be worth 50 points, although it is possible that problems with an exam question will alter the total points for a given test.

The NBME Basic Sciences Subject Examination in biochemistry will be administered at the end of the semester. The score for this exam will be normalized using a 50 point scale. Point assignment will be based on both class average and class standard deviation.

There will be 11 quizzes with a maximum value of 5 pts each. Quizzes will be administered in a combined format with the Physiology quiz at 1:00 PM on Fridays. There will be a maximum total of 50 possible points for quizzes (lowest quiz will be dropped).

The final course grade will be based upon the percentage of the total available points obtained from a maximum possible of 300 points. Again, if slight point adjustments are needed, they will be clearly explained and all students will have no doubt as to the mechanism by which their final grade is determined.

A = > 90 % correct

B+ = 87 - 89.9% correct

B = 80 – 86.9 % correct

C+ = 77 – 79.9% correct

C = 70 – 76.9 % correct

D = 65 – 69.9 % correct

F = < 64.9 % correct

Academic Policies

Academic Honor Code

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to ". . . be honest and truthful and . . . [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at <http://www.fsu.edu/~dof/honorpolicy.htm>.)

The Florida State University College of Medicine expects students to be honest in all of their class work. In addition to academic honesty, we expect a high standard of personal and professional conduct in the physicians we aspire to train. There is an Academic Honor Code that all College of Medicine students are expected to follow with respect to their moral and ethical behavior. Each student signs a pledge that s/he has read the College of Medicine Academic Honor Code and will adhere to the tenets of that code. Violation of this code will result in disciplinary action that may include dismissal from the College of Medicine. When a course director or education director believes a student has violated the Academic Honor Code based on direct observation or reporting by students, faculty or staff, that instructor should report the matter to the Chair of the Student Evaluation and Promotion Committee and discuss the matter with the student. The Chair/Student Evaluation and Promotion Committee will investigate and may remand the violation back to the instructor for resolution. The instructor must report to the Student Evaluation and Promotion Committee the mutually agreed upon resolution or may request further investigation with intervention by the Student Evaluation and Promotion Committee. A student whose performance in relation to the Academic Honor Code is deemed unsatisfactory for any reason will receive written notification from the Chair of the Student Evaluation and Promotion Committee of the Committee's recommendations.

FSU COM Attendance Policy

Students will be accountable and personally responsible for attending all educational activities that fall within the following categories: small groups, team-based learning sessions, labs, clinical experiences, written or oral examinations and other evaluative periods (e.g.: quizzes, practical exams) and computer sessions. Lecture attendance is mandatory when outside speakers or patients have been arranged. Otherwise, attendance at lectures is encouraged, but not mandatory.

Students are expected to attend all scheduled activities. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he is to call and notify the Office of Student Affairs (Year 1/2) and request that they inform the supervisors/professors/clerkship faculty/education director for that activity. If at all possible, the student should also call and at a minimum, leave a message with one of the course/clerkship directors. It is important that students realize that their absence or tardiness negatively impacts a number of other people. Attendance, including tardiness, is part of the students evaluation for professionalism. Negative evaluations may result in decreased grades and in severe cases, referral to the Student Evaluation and Promotion Committee.

Procedure for Notification of Absence, Year 1/2

If the student knows in advance of an upcoming legitimate absence, the online "Advance Request for Absence from Educational Activity(ies)" process should be followed as outlined below.

If the absence occurs due to an unforeseen emergency, the student should contact the course director and the Associate Dean for Student Affairs immediately to report the absence including the reason for the absence.

The implications for the absence (e.g., remediation, course grade adjustment, make-up exam, etc.) will be given to the student by the course director and final decisions regarding these actions shall rest with the course director.

The online "Request for Absence" process should be used for all absences, including post-illness absences, regardless of whether the student is requesting an absence from one or more classes or the entire day. Here is how it works.

- Student completes online form: <https://apps.med.fsu.edu/absence> (Form will only work in Internet Explorer)
- The form is routed to student affairs for approval then to appropriate Course Directors/Instructors
- Course Directors will approve/deny request
- Students can check on the status of the progress of the request by clicking on the "Pending requests" link, where they will be able to see if the instructor(s) has taken action on the form. (If the instructor has not taken action within 24 hours, students can contact him/her directly to let him/her know that the request is pending.)
- The student will receive an email indicating whether the request has been approved/denied.

Students must include all the courses/activities they plan to miss on the requested day of absence (lecture, small groups, quiz, exam, OSCE, etc.) If students plan to be gone the entire day and fail to include an activity/class on the form, they will NOT be excused from that particular activity/class. It will be considered unexcused. It is the students' responsibility to ensure the form is filled out completely with all the courses/activities they will miss for that particular day.

If a student's request has been denied, the email will not indicate the reason nor indicate which instructor denied the request.

Some reasons that are likely to automatically disqualify an advance request are: exams, CLC sessions and OSCEs -- unless it is for extreme circumstances (illness, family emergencies, etc).

Remediation Policy for Absences from Examinations, Quizzes, Small Group Sessions, Laboratory Sessions, Clinical Learning Center Sessions, Preceptor visits, and Clerkship Call

The remediation policies for absences from examinations, quizzes, small group sessions, laboratory sessions and clerkship call are:

1. **POLICY ON MISSED EXAMINATIONS:** Students are required to take major in-term and final examinations. Based on Curriculum Committee policy, a student can only be excused from an examination by a course/education director decision based on the personal situation of the student. The Course/Education Director will determine the time of the exam make-up session. Also, according to the Curriculum Committee decision and the existence of the FSU COM honor code, the student will be given the same examination given to the other students. *In this course (BMS 6520), all examinations must be made up within one week of returning to class unless special circumstances make this deadline impractical. An unexcused absence will result in a zero grade for the exam.*

2. **POLICY ON MISSED QUIZZES:** Students are required to take scheduled and unscheduled quizzes in the courses/clerkships. A student can only be excused from a quiz by a Course/Education Director decision based on the personal situation of the student. The student must make arrangements with the Course/Education Director to make up a missed quiz. Also, according to the curriculum committee decision and the existence of the FSU COM honor code, the student will be given the same quiz given to the other students. *In this course (BMS 6520), all quizzes must be made up within one week of returning to class unless special circumstances make this deadline impractical. An unexcused absence will result in a zero grade for the quiz.*

3. POLICY ON MISSED SMALL GROUP SESSIONS, LABORATORY SESSIONS, CLINICAL LEARNING CENTER SESSIONS, PRECEPTOR VISITS, AND CLERKSHIP CALL: The student should contact the course director and small group leader for instructions on remediation of the missed session and material covered. *In this course (BMS 6520), missed small group sessions must be made up by reviewing the cases that will be available on Blackboard. The student will be responsible for the material.*

Unexcused Absences from Small Group Session

Students with unexcused absences from small group sessions will be subject to 1% deduction in their final grade for each session missed.

Students who exhibit overt unprofessional behavior during small group sessions, based on the assessment of the small group facilitator, will be meet with the Course Director and Assoc. Dean of Students within one week of the initial incident. Subsequent violations will be reported to the Assoc. Dean of Student Affairs and to the Evaluation and Promotion Committee.

Remediation Policy for Students Who Fail a Course

Remediation of BMS 6520 will be planned and implemented by a combined decision of the Evaluation and Promotion Committee in collaboration with the course/education director.

Students With Disabilities

The Florida State University adheres to Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 (ADA) in prohibiting discrimination against any qualified person with a disability. Students with specific questions regarding the FSU policies governing students with disabilities may contact the Student Disability Resource Center.

Students with disabilities who wish accommodations based on a disability must notify the College of Medicine Office of Student Affairs and register with the FSU Student Disability Resource Center (SDRC). In order to register with the SDRC the student must provide the Center with the required documentation. A definitive diagnosis of disability must be stated in the documentation. Details regarding the required documentation for each disability can be found at the SDRC website www.fsu.edu/~staffair/dean/StudentDisability.

Exam Protocol for Students with Disabilities at FSU College of Medicine

The Florida State University adheres to Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 (ADA) in prohibiting discrimination against any qualified person with a disability. Students with specified questions regarding the FSU policies governing students with disabilities may contact the Student Disability Resource Center (SDRC).

Students who warrant accommodations based upon the functional effects of a physical or learning disability should adhere to the procedure described in detail in the student handbook.

Recording of Educational Materials and Copyright Notice

The Curriculum Committee of the FSU COM voted on August 6, 2009 to allow recording of portions of the curriculum, at the discretion of the individual faculty member. Such recordings will be maintained and may be distributed on the course management system (i.e., Blackboard). Because of patient confidentiality and copyright issues, there will be times when recording is not allowed. The recordings and their distribution must be in accordance with U.S. Copyright laws, i.e., the Copyright Act of 1976, as amended, including the TEACH Act. Faculty members will educate students regarding legal restrictions on downloading and sending copyrighted information. The following copyright notice must be distributed to students for each course:

"Copyright Notice: This course website may contain copyrighted materials that are used in compliance with U.S. Copyright Law, which provides that copyrighted materials may not be retained, saved to your

computer, revised, copied, or distributed without permission. Such copyrighted materials may be used in support of instructional activity as part of this course only and shall be limited to the duration of the course, unless otherwise specified by the instructor or owner of the material. You may only download or print materials when authorized by or at the direction of your instructor, who is responsible for knowing which materials are copyrighted and which are not. For more information, see the FSU Copyright Guidelines located at:

<http://www.auditservices.fsu.edu/services/copyright/#teach>
and

<http://learningforlife.fsu.edu/ctl/explore/bestPractices/docs/TEACHAct.pdf>."