CONTACT INFORMATION:

Course Director & Lecturer: Randolph Rill, Ph.D., Professor  
Office: 518COM  
Office Hours: Tuesday and Thursday, 4:00-5:00pm or by appointment  
Office Phone & Fax Number:  
644-3661 (Office-COM), 644-1768 (Office-Chem); 644-5781 (FAX)  
Class URL: Access via BLACKBOARD (see further below)  

Additional faculty will also participate as small group, case-based learning facilitators.  
Drs. Curtis Altman, Trent Clarke, Mohammad Kabbaj, James Olcese, Branko Stefanovic, Yanchang Wang, (Philip Posner, alternate).

COURSE MATERIALS:

This course is supported by a Blackboard site. All course materials are posted to this site, excepting the learning resources listed below that students should purchase.

Included on the Blackboard site are detailed Topic Outlines for each course subject, and the PowerPoint presentations that correlate with these notes. Announcements and other course materials will be posted to the site as appropriate.

LECTURE PERIODS WILL INCLUDE INQUIRY-BASED LEARNING. STUDENTS ARE EXPECTED TO BE SUFFICIENTLY FAMILIAR WITH THE ASSIGNED TOPICS TO PARTICIPATE IN CLASS DISCUSSIONS.

STUDENTS ARE RESPONSIBLE FOR READING THE COURSE TOPIC OUTLINES ON THE BLACKBOARD SITE PRIOR TO THE APPLICABLE LECTURES.

SEE COURSE ACTIVITY and TOPIC SCHEDULE ON BLACKBOARD SITE and additional details below.

REQUIRED RESOURCES:
Primary Biochemistry Text:


OTHER COMMONLY USED RESOURCE:


OTHER USEFUL LEARNING RESOURCES

General Biochemistry Texts:


WWW Resources/Databases

(see also resources accessed through COM Library Web Page):


WebMD (access through COM Library)

Web of Knowledge http://isi0.isiknowledge.com/portal.cgi

THE Medical Biochemistry Website: http://www-isu.indstate.edu/thcmew/mwking
COURSE DESCRIPTION:

The goal of the Medical Biochemistry and Genetics course is to provide the foundation for producing graduates who are knowledgeable in the fundamental biochemistry and genetics of normal and abnormal body processes. Students will apply this knowledge to course discussion of the biochemical and genetic bases of common or representative diseases and treatments. They will come to understand and be able to evaluate potential advances of diagnostic and treatment modalities. The content of this course provides students a foundation upon which to build in second year courses, clerkships and graduate medical education. Student small-group learning experiences encourage professional behavior and teamwork in a context that promotes use of resources such as the library, faculty and information technology. Course topic scheduling is coordinated to prepare students for and reinforce topics in Clinical Physiology.

COURSE OBJECTIVES:

Students completing this course should be able to perform the following:

1) Recognize and explain the functions of the key molecular components and steps of the synthesis, assembly, and degradation of biological macromolecules;

2) Recall and relate the molecular structures and chemical properties of biological macromolecules to their functions including ligand/substrate recognition, enzyme reactions, formation of multi-molecular complexes; and regulation;

3) Relate digestive processes and body production of usable and storable chemical energy to the chemical composition of foodstuffs, including vitamin and nutrient requirements;

4) Describe the inputs and outputs of human intermediary metabolism, and relate mechanisms of metabolic regulation by hormones, feedback loops and other mechanisms to body organ systems and their demands for energy and metabolites;

5) Recognize and explain the molecular basis of major body mechanisms for self-recognition and self-defense including blood factors, antibodies, anti-oxidants, hemostasis, and glucose homeostasis;

6) Describe key features and operating principles of the organization of the human genome, control of gene expression and cell cycle regulation;

7) Relate knowledge of normal bio-molecular structure-function relationships, metabolic and regulatory processes, and defense mechanisms to the molecular basis, diagnosis and treatment of diseases;

8) Recognize and explain the sources, detection and consequences of genetic defect(s)
9) Demonstrate a professional attitude and good communication skills by effective
participation in cooperative problem solving, especially in small group exercises directed
towards understanding the biochemical and genetic bases of disease origins, diagnoses
and treatments.

INSTRUCTIONAL METHODS:

1) Lecture (44 contact hours in 1 hr. sessions)
2) Small group, case-based learning (44 contact hours in 22 sessions of 2 hr.)
3) Tutorial (voluntary problem-solving and student-initiated discussion, max 15 contact
hrs.)
4) Review (voluntary before exams, 4 contact hrs max.)

Lecture periods consist of presentation and discussion of basic biochemical principles as
they relate to normal organ function and life processes, and to well-understood medical
conditions. Lecture periods are scheduled for one hour each, usually three times per
week (see detailed schedule). Entering students are expected to have mastered a
minimum of one semester of general biochemistry, and also biology courses with classic
genetics and basic molecular biology content. Brief reviews of basics will be given in
lectures, but lecture periods will generally be devoted to more advanced topics and
assume that the prerequisites have been met. Students are encouraged to request review
of fundamentals during voluntary Tutorial sessions held weekly.

Tutorial sessions held weekly by the Course Director are intended to allow students to
address deficiencies in basic biochemistry and genetics knowledge, since it is recognized
that student competencies in biochemistry vary considerably. Student attendance is
optional. Students are invited to provide specific questions in the published topic or
indicate a different subtopic for review. As time permits, problem-solving will be
practiced during Tutorial sessions using pre-selected problems, usually from the
recommended workbook.

Small group, case-based learning sessions are intended to reinforce subject material
covered in lecture periods and instruct students in applications of the subject material to
present and future clinical medicine. Typically two exercises are completed per two hour
session. Clinical cases or disease states are reviewed in most exercises to learn how
biochemistry and genetics are applied to understanding, diagnosis and treatment of
disease. Some exercises consist of reviews of recent ‘science news’ articles to learn
about and understand scientific advances affecting future medical practice. Case-based
learning exercises integrate biochemistry, physiology and genetics insofar as practical.

Review sessions are voluntary and student-initiated are held before each examination.
COURSE CONTENT AND OUTLINE:

See Activity and Topic Schedule posted under “Syllabus” in Blackboard site.

CLASS CLIMATE AND INSTRUCTOR EXPECTATIONS OF STUDENTS:

FRANKLY SPEAKING. My goal in this course is to prepare you to succeed. Your goal is to prepare yourself to succeed. So we can fundamentally agree that we need to work together.

We may not always agree on what is the best way for you to succeed, but we do need to agree on our roles in this course.

· You, the student, must be responsible for your learning.
· My job is to guide your learning.

I will try to do this in two ways. One way is by defining the course content consistent with your needs, the second is to facilitate your learning of the content in an efficient way.

Tutorial sessions and Biochemistry fundamentals.

This course cannot cover all the biochemistry you will be called upon to know. The fact is that you will be called on to know a great deal of biochemistry in your USMLE Step 1 exam, and as a physician. You are expected to come to this course with organic chemistry and at least one semester of biochemistry, plus knowledge of cell and molecular biology and genetics covered in undergraduate biology pre-med courses. Although I will review a number of basics in these subjects, we cannot take class time to review them all or deal at great length with any one topic. I have provided you with guides to sections of the Workbook and text that will assist you in reviewing foundation material not covered explicitly in class. The tutorial periods also are intended to provide opportunities for me to work with students in reviewing fundamentals.

X You should come to tutorial sessions prepared to ask questions or with topic areas that you would like to review.

X Send review requests to me by email before tutorial and review sessions if possible.

Lecture periods, Topic Outlines and core course content:

The core content of this biochemistry and molecular biology/genetics course is defined in the context of lecture periods and the corresponding course Topic Outlines, provided on the Blackboard site.
To efficiently guide your learning I would like to spend much of the lecture period in an inquiry-based mode devoted to the more difficult aspects of the subject material. This mode will only be successful if you come to class prepared with a reasonable degree of knowledge of the subject.

I will seek answers to specific questions during part of the lecture period, either from volunteers or from specific students. You will sometimes be asked to write down an answer on a paper that you will sign and turn in at the end of the period. Your answers will not be graded, but turn-in of the sheet will be recorded as evidence of attendance. Blank answers will count as ‘not attending’.

**X  You are expected to read and become familiar with material in the appropriate Topic Outline before each class period. Be prepared to respond to questions.**

**X  Bring a tablet or sheet of 8.5x11 paper that you can use to turn in question answers.**

**Small group, Case-Based Learning sessions:**

Some connections between basic content and clinical applications are made in lecture periods, but the CBL sessions allow opportunities to examine more clinical connections in a format that invites discussion and integration of biochemistry/genetics with more advanced clinical knowledge. The CBL sessions thus serve the purposes of reinforcing knowledge gained in lecture periods, and expanding knowledge to understanding diseases/disorders, their diagnoses and treatments. No special preparation is required for the CBL sessions, but after the sessions you should study the commentaries provided to understand fully the sessions, and be prepared to answer related questions on examinations.

**X  Study CBL commentaries after sessions to consolidate and verify knowledge.**

**GUIDE TO TOPIC OUTLINES AND OTHER INSTRUCTOR-SUPPLIED MATERIALS**

Several devices are used to assist you in identifying the most important content in this course or to otherwise identify content.

- Your first guide is the Activity and Topic Schedule, which supplies topic descriptors and identifies relevant reading materials.
- **Bold, Italics** is used to identify key words or concepts in their first appearance.
- $ Key concept of exceptional importance.
- i Topic or concept with strong medical relevance.
- & Note that expands on or makes some connection to an important key word or concept.
- 4 Digging deeper into a subject. You are not responsible for this information in
the present course but may find it useful later.

- ) or <, A tip or a useful way of looking at the topic or solving a problem.
- # Something with deadly consequences (e.g. a poison or toxic side effect)
- \ Relevant to children’s health.
- x Pay attention to this.

GRADING/EVALUATION:

What you are responsible for:

X All material in Topic Outlines posted on Blackboard site, whether covered in lecture or not, except that indicated as advanced by 4 (digging deeper) symbol or FYI only.

X All reading assignments in the workbook.

X Material in texts related to Topic Outlines, excepting content in ‘boxes’ unless noted otherwise or obviously relevant. The Outlines are just that, and are not intended to be comprehensive. Instead they should be used as guides to the content and the texts should be consulted for explanations and additional understanding.

X All material in CBL exercise Commentaries, whether covered in session or not, except that indicated as advanced or FYI only.

How Grades will be determined:

Unit Examinations: Four, 1 hr. examinations at approx. 4 week intervals.
Quizzes: Ten, 10 min. quizzes on Thursday prior to case-based learning exercises, except on exam weeks.
Final Examination: NBME Subject Examination in Biochemistry.

A student’s letter grade will be based on the average percentage of questions answered correctly in each of the above evaluations. The contributions of the evaluation modes are as follows.

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit examinations:</td>
<td>17% x 4 = 68%</td>
</tr>
<tr>
<td>Quizzes (best 8 of 10):</td>
<td>2% x 8 = 16%</td>
</tr>
<tr>
<td>NBME Final Exam:</td>
<td>16%</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>100%</td>
</tr>
</tbody>
</table>

Attendance: A percentage point will be deducted from the total if a student has more than three (3) unexcused absences from lecture periods. See full attendance policy below for other situations.
**Letter grade scale** (Numerical scores are rounded according to standard convention.):

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&gt;90 correct</td>
</tr>
<tr>
<td>A-</td>
<td>89</td>
</tr>
<tr>
<td>B+</td>
<td>87 – 88</td>
</tr>
<tr>
<td>B</td>
<td>80 – 87</td>
</tr>
<tr>
<td>B-</td>
<td>79</td>
</tr>
<tr>
<td>C+</td>
<td>77 – 78</td>
</tr>
<tr>
<td>C</td>
<td>70 – 76</td>
</tr>
<tr>
<td>C-</td>
<td>69</td>
</tr>
<tr>
<td>D</td>
<td>65 – 68</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 64</td>
</tr>
</tbody>
</table>

**Self-evaluation and Instructor case-based learning assessment:**

Students will be asked to fill out short self-assessment forms at the course mid-term and end. Analogous evaluation forms will be completed by case-based learning facilitators. Each student will be sent a brief mid-term report by the Course Director indicating notable areas of strength or weakness in case-based learning performance, and any other comments or concerns deemed appropriate. Students with notable weaknesses in performance will be counseled by the Director. These assessments will not be applied to the final letter grade, but will be retained by the Director for future evaluations, when appropriate.

**Faculty and Course Evaluation:**

Students will have the opportunity to evaluate each faculty member, using a standard evaluation questionnaire, at the conclusion of a major block of material presented by that instructor. Students will also have the opportunity to evaluate the course at its conclusion. Suggestions and comments concerning the course, its material and conduct, are welcomed and may be made to the Course Director at any time.

**COURSE POLICIES and RESPONSIBILITIES:**

*The following Attendance, Remediation, Honor Code, and ADA policies have been adopted by the Florida State University College of Medicine for all courses:*

**Attendance policy:**

The following policies have been adopted by the Florida State University College of Medicine for all courses in the medical curriculum.

Students are expected to attend all scheduled activities. Students are expected to be on
Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, she/he is to call and notify the Office of Student Affairs and request that they inform the supervisor/professor for that activity. If at all possible, the student should also call and, at a minimum, leave a message with one of the course director. 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 student’s evaluation for professionalism. Negative evaluations may result in decreased grades and, in severe cases, referral to the college Student Evaluation and Promotion Committee.

**Procedure for Notification of Absence:**

If the student knows in advance of an upcoming legitimate absence, the “Advance Notification of Absence from Educational Activity(ies)” form should be completed with signatures from the student, the Assistant Dean for Student Affairs, and the Course Director. The form will be filed in the Office of Student Affairs. 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.

If the absence occurs due to an unforeseen emergency, the student should contact the course director and the Assistant 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.

**Remediation Policy for Absences from Examinations, Quizzes, Small Group Sessions:**

1. **POLICY ON MISSED EXAMINATIONS:** Students are required to take major in-term and final examinations. According to the curriculum committee a student can only be excused from an examination by a student affairs dean/course director decision based on the personal situation of the student. 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 6204), all examinations must be made up within one week of returning to class.

2. **POLICY ON MISSED QUIZZES:** Students are required to take scheduled and unscheduled quizzes in the courses. A student can only be excused from a quiz by a student affairs dean/course director decision based on the personal situation of the student. 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 6204) there are no make-up quizzes. A quiz missed because of an excused absence will be used as one of two dropped quiz grades. A quiz
missed because of an unexcused absence will be scored as a ‘zero’ and cannot be included as one of the dropped quiz grades.

3. POLICY ON MISSED SMALL GROUP AND LABORATORY SESSIONS: The student should contact the course director or small group leader for instructions on remediation of the missed session and the material covered. In this course (BMS 6204), missed small group sessions must be made up within 1 week of returning to class. Case-based learning sessions are made up by handing in the answers to the exercise questions.

Unexcused Absences

Each unexcused absence from an academically required small group, laboratory, PBL, or other group activity where students are broken into smaller meeting units, will be penalized by deduction of the points attributable to the quiz administered for that session, if applicable, from the “final point score.” A percentage point will be deducted from the total class average if a student has more than three (3) unexcused absences from lecture periods. Students who have an unexcused absence from an examination will lose the entire score (points) awarded for that examination, and the final grade for the course will reflect this loss. Students with more than two such absences in the Fall Term will not receive academic credit for the course, and a grade of “F” will be submitted to the Registrar.

Remediation Policy for Students Who Fail a Course:

Remediation of courses will be planned and implemented by a decision of the Evaluation and Promotion Committee in collaboration with the course director.

ACADEMIC HONOR CODE:

Students are expected to uphold the Academic Honor Code published in The Florida State University Bulletin and the Student Handbook. The Academic Honor System of The Florida State University is based on the premise that each student has the responsibility (1) to uphold the highest standards of academic integrity in the student's own work, (2) to refuse to tolerate violations of academic integrity in the university community, and (3) to foster a high sense of integrity and social responsibility on the part of the university community.

Please see the following web site for a complete explanation of the Academic Honor Code.
http://www.fsu.edu/Books/Student-Handbook/codes/honor.html
http://www.fsu.edu/Books/Student-Handbook/

AMERICANS WITH DISABILITIES ACT:

Students with disabilities needing academic accommodation should: (1) register with and
provide documentation to the Student Disability Resource Center; (2) bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class. For more information about services available to FSU students with disabilities, contact the

Student Disability Resource Center  
Dean of Students Department, 08 Kellum Hall  
Florida State University  
Tallahassee, FL 32306-4400  
(850) 644-9566 (voice) (850) 644-8504 (TDD)  
SDRC@admin.fsu.edu; http://www.fsu.edu/~staffair/dean/StudentDisability/

(This syllabus and other class materials are available in alternative format upon request.)

SYLLABUS CHANGE POLICY:
This syllabus is a guide for the course and is subject to change with advanced notice.