

Syllabus
Biochemistry: Metabolism
CHE 419 / CHE 5419
Spring 2013

Instructor Information:

Name: J. Clinton Bailey II, Ph.D.
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My website contains class announcements, current office hours, syllabi, and lecture notes.

Period / Location:

Monday, and Wednesday 12:00 – 1:15 p.m.; 402 Math, Chemistry, and Computer Science Building.

Catalog Description:

CHE 419 / 5419 Biochemistry II: Metabolism Credit; 3 sem. hrs.

Prerequisites: CHE 304 and BIO 112 or instructors consent.

This lecture course covers the fundamentals of metabolism and bioenergetics. Clinical correlations with metabolic diseases and diabetes are presented.

Rationale:

This course is intended for students preparing to further their education in a professional (Medicine, Dentistry, Nursing, Physical Therapy, Graduate) school or pursue a career in science education. Biochemistry furthers the Mission of Mississippi College (See <http://www.mc.edu/about/vision-and-mission#mission>) by “stimulating the intellectual development of its students through the liberal arts and sciences” and prepares students for professional study in “specialized fields, including pre-professional and professional programs.” Biochemistry, as a component of the chemistry curriculum, prepares students “to utilize their skills, talents and abilities as they pursue meaningful careers, life-long learning, and service to God and others” as chemist, physicians, dentist, environmentalist, educators, and other areas.

Methods of Instruction:

This course will follow a lecture/ discussion format. Students should prepare for class by completing the assignments listed on the Lecture / Exam Schedule and completing assigned problem sets. Students will find it helpful to bring their textbook to class.

Textbook (Required):

Jeremy M. Berg, John L. Tymoczko, and Lubert Stryer, Biochemistry, 2012, Seventh Edition, W.H. Freeman. ISBN: ISBNB. 13:9781429229364 ISBN: 10:1429229365

Each student is expected to complete the reading assignment listed in the lecture schedule prior to attending class.

Power point Lectures: A copy of each lecture is available through the links on my website.

Email Account: All email communication to members of this class will be sent to their M.C. email account. Please acquire an account and learn to use it.

Tutoring is available for students upon request through your instructor (during office hours) or by contacting Mrs. Reeves in the Chemistry and Biochemistry department office (MCC 415).

Learning Objectives:

Biochemistry II: Metabolism CHE 419 / 5419 Topics

1. Explain energy conversions and identify the steps in glycolysis, citric acid cycle, and oxidative phosphorylation.
2. Explain energy conversion in photosynthesis (light and dark reactions)
5. Explain the pentose phosphate pathway.
6. Explain glycogen metabolism
7. Explain fatty acid metabolism
8. Explain amino acid catabolism
9. Explain amino acid anabolism
10. Explain nucleotide biosynthesis
11. Explain lipid and steroid biosynthesis

Attendance:

Class attendance is expected. The instructor will follow the established University attendance policy as described in current Undergraduate Catalog

Absence from Class: If you are absent from class or laboratory, it is your responsibility to obtain missed notes / assignments from another student.

Absence from an Exam: Attendance for every exam is mandatory. A student that is absent from an exam will receive a grade of zero for that exam. Make up exams may be administered at the professor's discretion.

Withdrawing from this Course:

The last day to withdraw from this course without a grade appearing on the transcript is listed on the College Academic Calendar (<http://www.mc.edu/offices/registrar/calendar/full-calendars/>). Withdrawal before this date will result in a W listed on the transcript.

Tuition Refund: To receive a 100% refund of tuition, a student must withdraw from this course by 5:00 p.m. on the date listed on the College Academic Calendar. Following this date, the tuition refund is 0%.

Academic Honesty:

You, as a student at Mississippi College and member of a larger academic community, are expected to be honest. The instructor will not tolerate participation in cheating or plagiarism and will deal harshly with suspected acts of either. The University policy on Academic Honesty (Policy 2.19) as explained in the current edition of the Student Handbook, THE TOMAHAWK (<http://www.mc.edu/student-life/student-handbook/>) will be followed.

Class Disruption:

In the interest of providing everyone an environment conducive to learning, please refrain from disrupting class. Students that disrupt class may be asked to leave the classroom and may receive a zero for that day's assignment. Tardiness and noise from a cell phone are two commonly encountered disruptions that are easy to avoid.

Tardiness: Be on time, class begins at Noon.

Cell Phone: Cell phones should be TURNED OFF and STORED (in a book bag, purse, or pocket) during the class period. The desktop, your hand or lap are NOT appropriate storage locations for a cell phone during class.

Recording Lectures: Video recording of lectures is forbidden. Audio only recording of lectures is allowed.

Evaluation:

Success: The key to success in this course is consistent, methodical study beginning the first week of class. "Study each day as if the test is tomorrow."

Grading: Student progress in mastering course requirements in Biochemistry I and II is measured by three unit exams (100 pts. each), a weekly quiz (10 pts. each) and a comprehensive final exam (200 pts.), as described below.

3 exams (@ 100 pts. each)	= 300 pts
Quiz grade (10 @ 10 pts. each)	= 100 pts
<u>1 comprehensive final exam (200 pts.)</u>	<u>= 200 pts</u>
TOTAL Undergraduate	= 600 pts.
<u>Graduate Student Research Paper</u>	<u>= 50 pts.</u>
TOTAL Graduate	= 650 pts.

Weekly Quiz: To encourage regular study, a ten point weekly quiz will be administered during the first 5 - 10 minutes each Wednesday. The quiz will contain questions about course material covered since the previous quiz. A student's highest ten weekly quiz grades will be used to calculate the "Quiz grade" (see above). Normally, 12-14 quizzes are administered in a semester. "Make-up" quizzes are NOT given.

Exam Format: Exams (and quizzes) may contain multiple choice, matching, fill in the blank, true or false, short answer, or discussion type questions.

Make-up Exam: Make-up exams will NOT be given except in extreme circumstances. (E.g. death or hospitalization of an immediate family member, or your hospitalization). Students involved in university-sanctioned activities (e.g. athletics, choir, etc.) must arrange to take the exam PRIOR to the regular exam date, and before leaving for the event. Administration of a make-up exam is at the discretion of the instructor.

Electronic devices: Use or possession of an unauthorized electronic device (computer, cell phone, calculator, etc.) during an exam or quiz will be considered cheating. During an exam, please securely store your electronic devices in a zipped pocket of a book bag or purse.

Scale: A student's letter grade is based on the percent of total possible points earned during the semester using the scale given below.

Undergraduate (CHE 418 or 419)			Graduate (CHE 5418 or 5419)		
Percentage	Points (600 pts)	Grade	Percentage	Points (650 pts.)	
100 - 90.0 %	600 - 540	A	100 – 90.0 %	650 - 585	A
89.9 - 80.0 %	539 - 480	B	89.9 – 88.0 %	584 - 572	B ⁺
79.9 0- 70.0 %	479 - 420	C	87.9 – 80.0 %	571 - 520	B
69.9 - 60.0 %	419 - 360	D	79.9 – 76.0 %	519 - 494	C ⁺
59.9 - 0 %	359 - 0	F	75.9 – 70.0 %	493 - 455	C
			69.9 – 60.0 %	454 - 390	D
			59.9 – 0 %	389 - 0	F

Graduate Student Paper: Graduate students must prepare a research presentation. (50 pts.). See instructions below.

Extra credit is NOT offered in this course.

Distribution of Final Grade: Since a student's grade is available on Banner Web soon after the semester ends, course grades will NOT be posted or distributed. Email inquires concerning grades should originate from your M.C. email account.

ADDITIONAL REQUIREMENTS FOR GRADUATE

STUDENTS: In addition to completing the requirements listed above, students registered for CHE 5418 or 5419 are required to prepare a voice over power point explaining a biochemical technique. The topic will be assigned by the instructor. Specific deadlines for this project are listed on the lecture schedule.

Special Accommodations: In order for a student to receive disability accommodations under Section 504 of the Americans with Disabilities Act, he or she must schedule an individual meeting with the Director of Student Counseling Services (SCS) immediately upon recognition of their disability (if their disability is known they must come in before the semester begins or make an appointment immediately upon receipt of their syllabi for the new semester). The student must bring with them written documentation from a medical physician and/or licensed clinician that verifies their disability. If the student has received prior accommodations, they must bring written documentation of those accommodations (example Individualized Education Plan from the school system). Documentation must be current (**within 3 years**). The student must meet with SCS face-to face and also attend two (2) additional follow up meetings (one mid semester before or after midterm examinations and the last one at the end

of the semester). Please note that the student may also schedule additional meetings as needed for support through SCS as they work with their professor throughout the semester. Note: Students must come in each semester to complete their Individualized Accommodation Plan (example: MC student completes fall semester IAP plan and even if student is a continuing student for the spring semester they must come in again to complete their spring semester IAP plan).

Student Counseling Services is located in Alumni Hall Room #4 or they may be contacted via email at christia@mc.edu or rward@mc.edu. You may also reach them by phone at 601-925-7790.

The instructor reserves the right to change this syllabus at any time during the semester, to meet the needs of the class.

Last updated on 10 January 2013

CHE 419 / 5419 Biochemistry II: Metabolism Spring 2013

DATE	DAY	TOPIC / READING ASSIGNMENT
January 14	M	Metabolism: Basic Concepts Ch. 15 Glycolysis and Gluconeogenesis Ch. 16 Citric Acid Cycle Ch. 17 Oxidative Phosphorylation Ch. 18 The Light Reactions of Photosynthesis Ch. 19 The Calvin Cycle and the Pentose Phosphate Pathway Ch. 20 Glycogen Metabolism Ch. 21 Fatty Acid Metabolism Ch. 22 Protein Turnover and Amino Acid Catabolism Ch. 23 The Biosynthesis of Amino Acids Ch. 24 Nucleotide Biosynthesis Ch. 25 The Biosynthesis of Membrane and Lipids and Steroids Ch. 26 The Integration of Metabolism Ch. 27
16	W	Quiz
21	M	HOLIDAY – M. L. King Day
23	W	Quiz Graduate Students: Assign Topics
28	M	
30	W	Quiz
February 4	M	
6	W	Quiz
11	M	EXAM I (Ch. 15, 16, 17, 18)

13	W	Quiz
18	M	
20	W	Quiz
25	M	
27	W	Quiz
March 4	M	
6	W	EXAM II (Ch. 19., 20 , 21)
11	M	HOLIDAY – Spring Break
13	W	HOLIDAY – Spring Break
18	M	
20	W	Quiz
22####	FRIDAY	LAST DAY TO DROP OR CHANGE TO AUDIT
25	M	
27	W	Quiz
April 1	M	HOLIDAY – Easter Break
3	W	Quiz
8	M	
10	W	Quiz
15	M	
17	W	Quiz
22	M	
24	W	Quiz
29	M	EXAM III (Ch. 22, 23, 24, 25, 26)
May 1	W	Quiz
May 3	F	Comprehensive Final Exam Noon – 3:00 p.m.

FRIDAY, 22 MARCH 2013, LAST DAY TO DROP OR CHANGE TO AN AUDIT.

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