ADVANCED BIOCHEMISTRY – CHEM-4302
FALL 2017
TR 9:25-10:40 ECoBE-1.116

INSTRUCTOR: Dr. Hassan Ahmad
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OFFICE HOURS: MTWR: 8:00-9:00AM

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TEXTBOOK AND/OR RESOURCE MATERIAL: LEHNINGER PRINCIPLES OF BIOCHEMISTRY BY NELSON AND COX (6TH EDITION)

COURSE DESCRIPTION: The course is largely consisting of biosynthesis of molecular precursors and biomolecules. The knowledge of the material covered in CHEM-3303 will be assumed. The course is a continuation of CHEM 3303 and is a prerequisite for this course. This course reviews the mechanisms of biosynthesis of macromolecules, particularly amino acids, proteins, fatty acids, lipids, polysaccharides, purines, pyrimidines and nucleic acids. Emphasis will be given to the processes that are regulated and integrated with the metabolism of the cell and the molecular basis of disorders related to intermediary metabolism.

PROGRAM/Major
STUDENT LEARNING OUTCOMES: Graduates will have both the broad knowledge and skills of critical thinking in the chemical sciences. Graduates are prepared to conduct or participate in advanced research. Graduates will demonstrate the ability to communicate chemical knowledge. Graduates are prepared to search for employment or matriculation into including graduate or professional school.

LEARNING OBJECTIVES/ COURSE OUTCOMES: Demonstrate an understanding of basic mechanism of biosynthesis of major macromolecules in the cell such as amino acids, fatty acids, carbohydrates and nucleotides. Demonstrate an understanding of the regulation and integration of metabolic processes in the cell. Demonstrate an understanding of signal transduction in biological systems. Describe major intermediates and enzymes involved in the central pathways for signal transduction.

GRADING POLICIES:
Grading Policy: Quizzes: 20% The final letter grade will be determined by matching the final average with the following scale: 90 or better = A, 80-89 = B, 70-79 = C, 60-69 = D, below 60 = F.
Chapter Exams: 60%
Final Exam: 20%

CALENDAR OF ACTIVITIES:
Aug. 28 Classes begin
Sept. 4 Labor Day holiday; UTRGV closed
Nov. 15 Drop/Withdrawal Deadline; last day to drop the course and receive a DR grade; after this date, you will be assigned a letter grade that may impact your GPA.
Nov. 23-24 Thanksgiving Holiday; university closed
Dec. 7 Study day; no classes
Dec. 13 Final Exams Wednesday Dec 13, 8:00-9:45AM

Tentative Schedule for Lectures, quiz, and exams

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Topic</th>
<th>Date</th>
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<tbody>
<tr>
<td>18</td>
<td>Amino Acid Oxidation and Urea Cycle</td>
<td>Quiz</td>
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<tr>
<td>14 &amp; 15</td>
<td>Carbohydrate Biosynthesis and Regulation</td>
<td>Exam-1 ► Monday, Sept. 25</td>
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<tr>
<td>21</td>
<td>Lipid Biosynthesis</td>
<td>Quiz</td>
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<tr>
<td>22</td>
<td>Biosynthesis of Amino Acids</td>
<td>Exam-2 ► Wednesday, Oct. 18</td>
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<tr>
<td>22</td>
<td>Biosynthesis of Molecules Derived from Amino Acids</td>
<td>Quiz</td>
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<tr>
<td>22</td>
<td>Metabolism of Nucleotides and other Related Molecules</td>
<td>Quiz</td>
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<tr>
<td>23</td>
<td>Integration of Hormonal Regulation of Mammalian Metabolism</td>
<td>Exam-3 ► Wednesday Nov 15</td>
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<tr>
<td>12</td>
<td>Bio-signaling</td>
<td>Quiz</td>
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<tr>
<td>27</td>
<td>Protein Metabolism</td>
<td>Quiz</td>
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<tr>
<td>09</td>
<td>Recombinant DNA Technology (time permitting)</td>
<td>Exam-4 ► Wednesday Dec 06</td>
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EXAMS & QUIZZES: Four chapter exams will be given during the semester, plus a comprehensive final. Since this course is built upon CHEM 3303, three 10-minute quizzes will be given before the start of a particular subject area. The first of the three quiz on the structure, functions and properties of amino acids, peptides and proteins (Chapters 3) will be given on Wednesday August 30. Dates of subsequent quizzes will be announced as we progress. The in-term chapter exams will be held during the regular class hours and will have a grade value of 100 points. For the most part, these exams will consist of short open-ended objective and/or multiple choice questions. For each exam you are required to bring your own Scantron form 882 and a #2 pencil. All exams must be taken at the scheduled hour except when legitimate medical or personal reasons make it impossible to do so. Under these special cases, a make-up exam may be given if the instructor is informed ahead of time. The instructor has full discretion for the make-up exam decision.

STUDENTS WITH DISABILITIES: If you have a documented disability (physical, psychological, learning, or other disability which affects your academic performance) and would like to receive academic accommodations, please inform your instructor and contact Student Accessibility Services to schedule an appointment to initiate services. It is recommended that you schedule an appointment with Student Accessibility Services before classes start. However, accommodations can be provided at any time. Brownsville Campus: Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at accessibility@utrgv.edu. Edinburg Campus: Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at accessibility@utrgv.edu.

MANDATORY COURSE EVALUATION PERIOD: Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (http://my.utrgv.edu); you will be contacted through email with further instructions. Online evaluations will be available Nov. 16 – Dec. 6, 2017. Students who complete their evaluations will have priority access to their grades.

ATTENDANCE: Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV’s attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations.

SCHOLASTIC INTEGRITY: As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism, and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

SEXUAL HARASSMENT DISCRIMINATION and VIOLENCE: In accordance with UT System regulations, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and so must report any instance, occurring during a student’s time in college, of sexual assault, stalking, dating violence, domestic violence, or sexual harassment about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide learning, working, and living environment that promotes personal integrity, civility, and mutual respect in an environment free from sexual misconduct and discrimination.

COURSE DROPS: According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the “3-peat rule” and the “6-drop” rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.