BS in Biomedical Sciences
Mission 10—Medical Biochemistry
Mission Equivalency: 4310
Spring 2017: 1/19-5/12
Version: 12/12/2016 MZ

***This syllabus represents the current mission plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.*

TEXTBOOK AND/OR RESOURCE MATERIAL

All required content for this mission is paid for via mission fees and is delivered via iPad, which will be issued to you at your orientation meeting for the program. This learning material will include carefully curated readings, video, interactives, animations, apps, and other sources.

The following materials, and many others, are included:

- Janson LW, Tischler ME. The Big Picture: Medical Biochemistry.McGraw-Hill; 2012.
- Rodwell VW, Bender DA, Botham KM, Kennelly PJ, Weil PA. Harper's Illustrated Biochemistry. McGraw-Hill; 2015.
- Lieberman M, Marks A, Peet A. Mark's Basic Medical Biochemistry: A Clinical Approach, 4e. Philadelphia, PA:Lippincott Williams & Wilkins; 2013.

Mission Description and Prerequisites

Welcome to the next step of your journey into the world of the biomedical sciences. As you reach each of your learning goals, you will develop the knowledge and skills necessary to contribute to the health and well being of many members of your community. You will also learn what the professionals in the field know about the inner workings of the human body and medicine. It will be a fascinating trip through one of the fastest growing areas of scientific study. In this mission, you will study:

- Different components of cells and how they contribute to cellular and organism function

- Prerequisites include:
  - BMED 1101
  - BMED 1103
  - Corequisite of BMED 1102

LEARNING OBJECTIVES/OUTCOMES FOR THE MISSION

As you complete the activities in this mission, you will work toward demonstrating competence in each of these programmatic objectives:

- 1.B: Apply knowledge of biology in defining and discussing basic biomedically-related science concepts. (Level 2)
- 1.C: Apply knowledge of chemistry and organic chemistry in defining and discussing basic biomedically-related science concepts. (Level 2)

- 2.A: Describe the structure and function of the body and explain the basis of major pathologies and diseases at the molecular, cellular, organ, and system levels. (Level 2)
- 5.A: Describe the basic principles of scientific method including common research approaches, methods and designs. (Level 2)
- 5.C: Identify and develop biomedical science questions as they emerge in case-based, lab, and clinical activities and identify and apply relevant evidence to answer those questions. (Level 2)
- 7.A: Use information technology for gathering and processing biomedical or scientific information; managing information; and assimilating evidence from scientific studies. (Level 2)
- 9.C: Demonstrate ability to work collaboratively with others to achieve shared goals. (Level 3)
- 12.A: Effectively and confidently convey information to others through oral communication. (Level 2)

GRADING POLICIES

You will demonstrate your achievement of program competencies by completing the following types of activities. You must receive at least a 70% to receive credit for demonstrating competence.

You will complete the following kinds of activities as you work your way through the program. The total amount of points available for this mission is 3000.

Checks for Understanding (CFUs) are quiz-like questions with dynamic feedback so you and your instructors can monitor your progress and understanding of key concepts. These key concepts are foundational and key to your success in the biomedical sciences. You can take these assessments an unlimited amount of times. *You will receive 20 points for each CFU activity completed, totaling 260 points or 8% of your grade.* <u>You must receive a grade of 80% or better on the CFU questions to be eligible for the in-class participation grade.</u>

Participation- In order to determine student participation, the iRAT test will be given at the beginning of the class. It will contain 10 multiple choice questions over reading material that has been assigned for a given class period. If students achieved a grade of 70% or higher, students are eligible to receive team based learning grades. If students do not score 70% or higher they will receive iRAT grade for both participation and team based learning grades. Each participation grade (iRAT) is worth 43 points (last participation grade will be worth 49 points) for a total of 565 points or 19% of your grade.

Team based learning- A case will be provided and reviewed as a group. The tRAT is a test that will be given at the end of each case. It will contain 10 multiple choice questions. The tRAT is worth 50 points. You may receive up to 550 points or 18% of your grade. You must receive 70% or higher in participation grade to be eligible for Team Based Learning points (see above).

Midterm will cover all the content learned up to a certain point. You will take this exam in class and not in TEx. *You may receive 800 points for the midterm* or 27% of your grade.

End of Mission Exam will be comprehensive, covering the content presented in all modules. You will take this exam in class and not in TEx. *You can earn up to 825 points on the exam* or 28% of your grade. ***No retake of the End of Mission Exam will be allowed****.*

Assessment	Total Points	Percent

CFU	260	8%
Participation	565	19%
TBL (tRAT)	550	18%
Midterm	800	27%
Final Exam	825	28%
	3000	**100%**

Point conversion for grade

A	2700-3000
B	2400-2699
C	2100-2399
D	1800-2099
F	Below 1800

STAYING ON TRACK

The TEx app on your iPad will help you keep track of your schedule of activity due dates and will let you know if you begin to get off track. Your Instructional Facilitator and Instructors will also be monitoring your work and are there to help you; contact them immediately if you start to struggle. If you get behind, don't give up—work with them to make a plan to get back on track.

ABSENCE AND MAKEUP POLICY

Coached Study Hours and Class Activities are mandatory. If an excused absence is unavoidable, at the Instructor's sole discretion, students may complete an alternate assignment, which may include completing an individual version of the Team-based Learning activity or reading and summarizing a scientific article chosen by the Instructor.

CALENDAR OF EVENTS

The UTRGV academic calendar can be found at http://my.utrgv.edu at the bottom of the screen, prior to login. Important dates for Fall 2016 include:

January 19 Classes begin

March 14-18 Spring break, no classes

March 25-26 Easter holiday, no classes

May 5 Study day, no classes

May 6-12 Final exams

Note: Face-to-face and CSH days and times may vary.

Date	Day	Activity	Points	Contact

1/19/17	Week 1	Module 1: Unit 1-Introduction to medical biochemistry, an overview of the course		
1/16	Mon	Martin Luther King Jr. Day-no classes		
1/17	Tue			
1/18	Wed			
1/19	Thur	Learn about Medical biochemistry Check for understanding (CFU)	20	
1/20	Fri			
* Dates/ Day varies		Mini Lecture		IF
* Dates/ Day varies		Face-to-face Lecture Participation	43	Professor
1/23/17	Week 2	Module 1: Unit 2-Introduction to the electron transport chain		
1/23	Mon	Learn about the electron transport chain Check for understanding	20	
1/24	Tue			
1/25	Wed			
1/26	Thur			
1/27	Fri			
* Dates/ Day varies		Mini lecture Q&A CSH		IF
* Dates/ Day varies		Face-to-face Lecture TBL Participation	43	Professor
1/30/17	Week 3	Module 1: Unit 3-Hemoglobin and myoglobin		
1/30	Mon	Learn about hemoglobin and myoglobin Check for understanding	20	
1/31	Tue			
2/1	Wed			
2/2	Thur			

2/3	Fri			
* Dates/ Day varies		Mini lecture Q&A CSH		IF
* Dates/ Day varies		Face-to-face Lecture TBL tRAT Participation	 50 43	Professor
2/6/17	Week 4	Module 1: Unit 4-Uncoupling of proteins		
2/6	Mon	Learn about uncoupling of proteins Check for understanding	 20	
2/7	Tue			
2/8	Wed			
2/9	Thur			
2/10	Fri			
* Dates/ Day varies		Mini lecture Q&A CSH		IF
* Dates/ Day varies		Face-to-face Lecture TBL tRAT Participation	 50 43	Professor
2/13/17	Week 5	Module 2: Metabolic Pathways Unit 1-The Pentose Pathway		
2/13	Mon	Learn about the pentose pathway Check for understanding	 20	
2/14	Tue			
2/15	Wed			
2/16	Thur			
2/17	Fri			

* Dates/ Day varies		Mini lecture Q&A CSH		IF
* Dates/ Day varies		Face-to-face Lecture TBL tRAT Participation	 50 43	Professor
2/20	Week 6	Module 2: Unit 2-Gluconeogenesis		
2/20	Mon	Learn about gluconeogenesis Check for understanding	 20	
2/21	Tue			
2/22	Wed			
2/23	Thur			
2/24	Fri			
* Dates/ Day varies		Mini lecture Q&A CSH		IF
* Dates/ Day varies		Face-to-face Lecture TBL tRAT Participation	 50 43	Professor
2/27/17	Week 7	Midterm exam		
2/27	Mon			
2/28	Tue			
3/1	Wed			
3/2	Thur			
3/3	Fri			
* Dates/ Day varies				

* Dates/ Day varies		Midterm exam	800	Professor
3/6/17	Week 8	Module 2: Unit 3-Urea Cycle		
3/6	Mon	Learn about the urea cycle Check for understanding	 20	
3/7	Tue			
3/8	Wed			
3/9	Thur			
3/10	Fri			
* Dates/ Day varies		Mini lecture Q&A CSH		IF
* Dates/ Day varies		Face-to-face Lecture TBL tRAT Participation	 50 43	Professor
3/13/17	Week 9	Spring Break – no classes		
3/13	Mon	Spring Break – no classes		
3/14	Tue	Spring Break – no classes		
3/15	Wed	Spring Break – no classes		
3/16	Thur	Spring Break – no classes		
3/17	Fri	Spring Break – no classes		
* Dates/ Day varies				
* Dates/ Day varies				
3/20/17	Week 10	Module 2: Unit 4- Purine Nucleotide Metabolism		

3/20	Mon	Learn about purine nucleotide metabolism Check for understanding	20	
3/21	Tue			
3/22	Wed			
3/23	Thur			
3/24	Fri			
* Dates/ Day varies		Mini lecture Q&A CSH		IF
* Dates/ Day varies		Face-to-face Lecture TBL tRAT Participation	 50 43	Professor
3/27/17	Week 11	Module 3: Cholesterol Unit 1-The role of HMG-CoA reductase		
3/27	Mon	Learn about the role of HMG-CoA reductase Check for understanding	20	
3/28	Tue			
3/29	Wed			
3/30	Thur			
3/31	Fri			
* Dates/ Day varies		Mini lecture Q&A CSH		IF
* Dates/ Day varies		Face-to-face Lecture TBL tRAT Participation	 50 43	Professor
4/3/17	Week 12	Module 3: Unit 2-Catabolism and metabolism of bile salts		
4/3	Mon	Learn about catabolism and metabolism of bile salts Check for understanding	20	
4/4	Tue			
4/5	Wed			

4/6	Thur			
4/7	Fri			
* Dates/ Day varies		Mini lecture Q&A CSH		IF
* Dates/ Day varies		Face-to-face Lecture TBL tRAT Participation	 50 43	Professor
4/10/17	Week 13	Module 3: Unit 3-Cholesterol metabolism		
4/10	Mon	Learn about cholesterol metabolism Check for understanding	 20	
4/11	Tue			
4/12	Wed			
4/13	Thur			
4/14	Fri	Easter holiday, no classes		
* Dates/ Day varies		Mini lecture Q&A CSH		IF
* Dates/ Day varies		Face-to-face Lecture TBL tRAT Participation	 50 43	Professor
4/17/17	Week 14	Module 3: Unit 4-Lipoproteins		
4/17	Mon	Learn about lipoproteins Check for understanding	 20	
4/18	Tue			
4/19	Wed			
4/20	Thur			
4/21	Fri			
* Dates/ Day varies		Mini lecture Q&A CSH		IF

* Dates/ Day varies		Face-to-face Lecture TBL tRAT Participation	 50 43	Professor
4/24/17	Week 15	Module 3: Unit 5-Starvation		
4/24	Mon	Learn about starvation Check for understanding	 20	
4/25	Tue			
4/26	Wed			
4/27	Thur			
4/28	Fri			
* Dates/ Day varies		Mini lecture Q&A CSH		IF
* Dates/ Day varies		Face-to-face Lecture TBL tRAT Participation	 50 49	Professor
5/1/17	Week 16	Review and Student Presentations		
5/1	Mon			
5/2	Tue			
5/3	Wed			
5/4	Thur			
5/5	Fri	Study Day – no classes		
* Dates/ Day varies		Mini lecture Q&A CSH		IF
* Dates/ Day varies		Face-to-face Lecture		Professor
5/8/17	Week 17	Final exam week		
5/9	Mon			

5/10	Tue			
5/11	Wed			
5/12	Thur			
5/13	Fri			
* Dates/ Day varies		Final exam	825	Professor
	Total		3000	

UTRGV POLICY STATEMENTS

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 Mission Evaluation Period:

Students are required to complete an ONLINE evaluation of this mission, accessed through your UTRGV account (http://my.utrgv.edu); you will be contacted through email with further instructions. 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 mission 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 mission 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 mission 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 a 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 missions during their undergraduate career. Missions dropped at other Texas public higher education institutions will count toward the six-mission drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.