BIOCHEMISTRY LABORATORY SYLLABUS (CHEM 3103.02)

Course: Biochemistry I Laboratory
Term: Spring 2020
Website: UTRGV Blackboard
Class Time: W 1:50 pm - 4:30 pm
Laboratory Room: ESCNE 3.232
Course Number: 54714 (3103.02)

Instructor: Dr. Yonghong Zhang
Office: ESCNE 4.620
Email: yonghong.zhang@utrgv.edu
Office Phone: 956-665-2288
Office Hours: MW 11:00 am - 12:30 pm/TR 4:30 - 5:30 pm
GTA: Beatriz Gamez

Textbook and/or Resource Material
Biochemistry Laboratory Manual by Dr. H. Ahmad (available at the bookstore), Laboratory note book

Course Overview
Introduction to the application of various techniques (spectroscopy, column chromatography, electrophoresis, etc.) to study macromolecules (proteins and nucleic acids), protein estimation, enzyme kinetics and chemistry of carbohydrate and nucleic acids.

Course Description and Prerequisites
CHEM 3303; can be taken concurrently with CHEM 3303

Learning Objectives/Outcomes for the Course
The Biochemistry Laboratory is designed to give you hands-on experience with laboratory techniques used in Biochemistry. Upon completion of this course you should be:

1. Knowledgeable in the design, execution, and scientific reporting of experiments conducted in a Biochemistry laboratory.
2. Able to properly document your activities and results
3. Able to analyze and communicate the significance of data collected in your laboratory activities. This includes the proper use of statistical analysis where appropriate.
4. Able to use such resources as PubMed to find scientific literature, and to read, understand and cite it.
5. Able to perform techniques and use appropriate instrumentation associated with the investigation of biomolecules.

Grading Policies
Your final grade will be determined by:

1. Group write up- 20% (DNA purification, PCR, and agarose gel analysis)
2. Group write up- 20% (Enzyme Kinetics)
3. Group write up: 10% (all other labs combined)
4. Individual lab book: 10%
5. Quizzes: 10% (may be combined with individual lab book)
6. Final comprehensive exam: 30%

The grading scale is as follows:
- 100-90 = A
- 80-89 = B
- 70-79 = C
- 60-69 = D
- 59 and below = F

Make-up Examinations: ONLY for official university events such as a member of the band for a concert or an athlete for a contest or an approved holy day or with a medical. A makeup exam will NOT be given for ANY other circumstances. Note: a grade of zero will be recorded for any missed exams or lab reports.

Group/individual work: Scientific work is being done increasingly in groups and students need to gain experience working in teams to gain confidence and to learn how to play the roles of team members. We will be working both in small groups and singly to ensure that certain objectives are met.
Calendar of Activities
Important dates for Spring 2020 include:
January 13  First day of classes
January 16  Last day to add a course or register for spring 2020
January 20  Martin Luther King Jr. Day – NO classes
April 9     Last day to drop a course; will count toward the 6-drop rule
April 10-11 Easter Holiday – NO classes
April 30    Study Day – NO classes
May 1-7     Final Exams
May 8-9     Commencement Exercises

Other Course Information
Due date for Lab reports: To be announced in class.

Instructions for pre-lab preparation and format for writing lab reports:
1) Obtain a bound notebook for use for pre-lab preparation, outlining/flowcharting lab experiments (before the lab is performed) notes on additional background information, recording observations and lab data during the lab period. This will serve as the resource from which you will write lab reports that will be turned in.
2) Number the pages in the notebook and include a Table of contents for easy referencing.
3) The notebooks will be checked periodically for a grade.
4) Prepare before the lab starts, any tables etc. that will be required for easy data collection.
5) Lab reports are to be written in the format of a research publication presented in a separate handout. Please follow the format carefully. The reports should be typewritten and graphs prepared using graphical analysis programs.

Attire in the lab: Students ARE REQUIRED TO WEAR SAFETY GOGGLES AND LAB COATS AT ALL TIMES

Safety in the Lab: Please see separate Safety Handout

Locker Assignment and Check-in: Make sure that everything is present and in good condition. Any dirty or broken/cracked items should be ‘swapped out’ at the Stockroom window (Rm. 3.218)

Schedule: please see attached for Tentative Class Schedule and Blackboard for the most up to date Schedule
Lab reports: please see separate handout

Appointments: If you can demonstrate to me that you cannot meet during my Office Hours, then you can make an appointment to see me outside office hours, but it must be done 3 days in advance by e-mail. Cellular Phones: Cellular phones and/or beepers should be turned off or set to vibrate during the class period.

UTRGV Policy Statements

STUDENTS WITH DISABILITIES:
Students with a documented disability (physical, psychological, learning, or other disability which affects academic performance) who would like to receive academic accommodations should contact Student Accessibility Services (SAS) for additional information. In order for accommodation requests to be considered for approval, the student is responsible for providing sufficient documentation of the disability to SAS and participating in an interactive discussion with SAS staff. Accommodations may be requested at any time but are not retroactive. Please contact SAS early in the semester/module for guidance. Students who experience a broken bone, severe injury, or undergo surgery may also be eligible for temporary accommodations.

Pregnancy, Pregnancy-related, and Parenting Accommodations
Title IX of the Education Amendments of 1972 prohibits sex discrimination, which includes discrimination based on pregnancy, marital status, or parental status. Students seeking accommodations related to pregnancy, pregnancy-
related condition, or parenting (reasonably immediate postpartum period) are encouraged to contact Student Accessibility Services for additional information and to request accommodations.

**Student Accessibility Services:**
**Brownsville Campus:** Student Accessibility Services is located in 1.107 in the Music and Learning Center building (BMSLC) and can be contacted by phone at (956) 882-7374 or via email at ability@utrgv.edu.

**Edinburg Campus:** Student Accessibility Services is located in 108 University Center (EUCTR) and can be contacted by phone at (956) 665-7005 or via email at ability@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. Students who complete their evaluations will have priority access to their grades. Online evaluations will be available on or about:

- **Module 1** Feb 19-25, 2020
- **Module 2** Feb 15-21, 2020
- **Full Spring Semester** April 10-29, 2020

**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 (including self-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, STU 02-100, and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to Student Rights and Responsibilities.

**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 to the Office of Institutional Equity & Diversity (oie@utrgv.edu) any instance, occurring during a student’s time in college, of sexual misconduct, which includes sexual assault, stalking, dating violence, domestic violence, and 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 a learning, working, and living environment that promotes personal integrity, civility, and mutual respect that is free from sexual misconduct, discrimination, and all forms of violence. If students, faculty, or staff would like confidential assistance, or have questions, they can contact OVAVP (Office for Victim Advocacy & Violence Prevention) at (956) 665-8287, (956) 882-8282, or OVAVP@utrgv.edu.

**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.
STUDENT SERVICES:
Students who demonstrate financial need have a variety of options when it comes to paying for college costs, such as scholarships, grants, loans and work-study. Students should visit the Students Services Center (U Central) for additional information. U Central is located in BMAIN 1.100 (Brownsville) or ESSBL 1.145 (Edinburg) or can be reached by email (uceentral@utrgv.edu) or telephone: (888) 882-4026. In addition to financial aid, U Central can assist students with registration and admissions.

Students seeking academic help in their studies can use university resources in addition to an instructor’s office hours. University Resources include the Advising Center, Career Center, Counseling Center, Learning Center, and Writing Center. The centers provide services such as tutoring, writing help, counseling services, critical thinking, study skills, degree planning, and student employment. In addition, services such as the Food Pantry are also provided. Locations are listed below.

<table>
<thead>
<tr>
<th>Center Name</th>
<th>Brownsville Campus</th>
<th>Edinburg Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advising Center</strong></td>
<td>BMAIN 1.400</td>
<td>ESWKH 101</td>
</tr>
<tr>
<td><a href="mailto:AcademicAdvising@utrgv.edu">AcademicAdvising@utrgv.edu</a></td>
<td>(956) 665-7120</td>
<td>(956) 665-7120</td>
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<tr>
<td><strong>Career Center</strong></td>
<td>BCRTZ 129</td>
<td>ESSBL 2.101</td>
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<tr>
<td><a href="mailto:CareerCenter@utrgv.edu">CareerCenter@utrgv.edu</a></td>
<td>(956) 882-5627</td>
<td>(956) 665-2243</td>
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<tr>
<td><strong>Counseling Center</strong></td>
<td>BSTUN 2.10</td>
<td>EUCTR 109</td>
</tr>
<tr>
<td><a href="mailto:Counseling@utrgv.edu">Counseling@utrgv.edu</a></td>
<td>(956) 882-3897</td>
<td>(956) 665-2574</td>
</tr>
<tr>
<td>Counseling and Related Services List</td>
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<tr>
<td><strong>Food Pantry</strong></td>
<td>BCAVL 101 &amp; 102</td>
<td>EUCTR 114</td>
</tr>
<tr>
<td><a href="mailto:FoodPantry@utrgv.edu">FoodPantry@utrgv.edu</a></td>
<td>(956) 882-7126</td>
<td>(956) 665-3663</td>
</tr>
<tr>
<td><strong>Learning Center</strong></td>
<td>BMSLC 2.118</td>
<td>ELCTR 100</td>
</tr>
<tr>
<td><a href="mailto:LearningCenter@utrgv.edu">LearningCenter@utrgv.edu</a></td>
<td>(956) 882-8208</td>
<td>(956) 665-2585</td>
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<tr>
<td><strong>Writing Center</strong></td>
<td>BUBLB 3.206</td>
<td>ESTAC 3.119</td>
</tr>
<tr>
<td><a href="mailto:WC@utrgv.edu">WC@utrgv.edu</a></td>
<td>(956) 882-7065</td>
<td>(956) 665-2538</td>
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## Tentative Lab Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Lab Book</th>
<th>App. Hours</th>
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<tbody>
<tr>
<td>1</td>
<td>01/22/2020</td>
<td>Check in, Lab safety, use of pipetman, calculations in the laboratory <em>etc</em>, reading a research paper; computer lab</td>
<td>Page 5-11</td>
<td>2</td>
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<tr>
<td>2</td>
<td>01/29/2020</td>
<td>Protein Lab I - Lowry’s Assay – <strong>group write-up 5%</strong></td>
<td>Pages 17-20</td>
<td>2</td>
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<td>3</td>
<td>02/05/2020</td>
<td>Protein Lab II- Amino Acid Titration - <strong>group write-up 5%</strong></td>
<td>Pages 21-22</td>
<td>3</td>
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<td>4</td>
<td>02/12/2020</td>
<td>Protein Lab III- Protease Activity</td>
<td>Pages 24-25</td>
<td>2</td>
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<td>5</td>
<td>02/19/2020</td>
<td>Use of Ninhydrin Reaction</td>
<td>Pages 27-31</td>
<td>3</td>
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<tr>
<td>6</td>
<td>02/26/2020</td>
<td>Carbohydrate Analysis</td>
<td>Pages 34-36</td>
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<tr>
<td>7</td>
<td>03/04/2020</td>
<td>Enzyme Kinetics - <strong>group write-up worth 20%!!</strong></td>
<td>Pages 37-39</td>
<td>2</td>
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<td>8</td>
<td>03/18/2020</td>
<td>Nucleic Acid – Isolation</td>
<td>Pages 53-57</td>
<td>2</td>
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<td>9</td>
<td>03/25/2020</td>
<td>Nucleic Acid – PCR</td>
<td>Pages 53-57</td>
<td>2</td>
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<tr>
<td>10</td>
<td>04/01/2020</td>
<td>Nucleic Acid – Agarose Gel Electrophoresis <strong>Group write-up for all Nucleic Acid labs 20%!!</strong></td>
<td>Pages 53-57</td>
<td>2</td>
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<td>11</td>
<td>04/08/2020</td>
<td>Gel Filtration Chromatography</td>
<td>Pages 40-45</td>
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<td>12</td>
<td>04/15/2020</td>
<td>Polyacrylamide Gel Electrophoresis (SDS-PAGE) <strong>Final Exam Review</strong></td>
<td>Pages 46-52</td>
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<td>13</td>
<td>04/22/2020</td>
<td><strong>Final Exam</strong></td>
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</tbody>
</table>

### Important Dates

- **Jan 29, 2020**: Census Day
- **April 9, 2020**: Last day to Drop/Withdraw
- **April 10 ~ April 29, 2020**: Mandatory Course Evaluation