CHEM 3753: Introduction to Biochemical Methods  
Fall 2015

Instructor: Dr. Rakhi Rajan  
Email: r-rajan@ou.edu (please use “CHEM3753” in subject)  
Office: SLSRC 2770  
Action Center: Wednesdays, 3:45 pm – 5:45 pm Wagner Hall 245 (will move to Nielsen Hall once rooms are available)  
Office Hours: Monday, 9 am – 11 am at my office  
Also available by appointment

Classroom Lecture: Wednesdays, Fridays 2:30 pm – 3:20 pm, Nielsen Hall 0170  
Online Content: D2L (learn.ou.edu)  
Laboratory Sections: PHSC 310 (You must check in for the first lab session)

<table>
<thead>
<tr>
<th>CRN/Section</th>
<th>Date &amp; Time</th>
<th>TA</th>
</tr>
</thead>
</table>
| 11884/011   | Mon., 10:30 am – 1:20 pm | Brett Roberts  
Contact: brett.l.roberts@ou.edu |
| 11886/012   | Mon., 1:30 pm – 4:20 pm  | Brett Roberts  
Contact: brett.l.roberts@ou.edu |
| 11888/013   | Tues., 8:30 am – 11:20 pm | Mikayla Spitler  
Contact: mspitle@ou.edu |
| 11889/014   | Tues., 1:30 pm – 4:20 pm  | Caio Franca  
Contact: Caio.Franca-1@ou.edu |
| 11892/015   | Wed., 11:30 am – 2:20 pm  | Caio Franca  
Contact: Caio.Franca-1@ou.edu |
| 11893/016   | Thurs., 8:30 am – 11:20 pm | Mikayla Spitler  
Contact: mspitle@ou.edu |

Required Materials:  
• Laboratory Notebook  
• Safety Goggles (not safety glasses, if you don’t know the difference check on-line for pictures) – you will not be permitted in the lab without them  
• A non-graphing calculator for each class and lab (sharing will not be acceptable).  
• iClicker

Prerequisites:  
CHEM 3653 or concurrent enrollment

Course Description:  
This is a one-semester survey of current and routinely used methods in biochemistry. The course will explain the theory of each technique in lecture (2 hours per week) and the execution of these through hands-on lab work (3 hours per week).
Course Goals:
The course is designed to give students an intermediate level of competency in understanding and performing common biochemical experiments. This knowledge provides a foundation for future studies in biochemistry-related careers and medical fields.

Learning Outcomes:
Upon completion, the student should be able to fulfill these statements about the experiments used in the lab/lecture:

- Evaluate the basis of why you would do certain experiments
- Explain what physical phenomena is being tested
- Extrapolate from experimental results back to starting material properties
- Troubleshoot why experiments would give unclear (or wrong!) results

In particular, students should know how to:
- Make up solutions to a given molarity and to calculate dilutions
- Use Excel and the Solver plug-in, line fits
- Be able to calculate pH using the Henderson-Hasselbalch equation
- How PCR reactions work
- Design of protein expression vectors and how they work
- How to quantify DNA and proteins
- How to purify proteins using chromatographic methods
- How to characterize proteins and small molecules by spectrophotometry
- How to measure and analyze the kinetic activity of selected proteins
- How to assess the mode of inhibition in enzymatic activity assays
- Michaelis-Menton kinetics

Breakdown of Course Grading Policy
A = 90 to 100% of points earned
B = 80 to 89%
C = 70 to 79%
D = 60 to 69%
F = below 60%

Check your grades carefully when they are posted! If you feel a mistake has been made you must bring it to my attention within the first week of posting – no corrections will be made beyond this point.

Grade breakdown:

<table>
<thead>
<tr>
<th>Examinations and Quizzes</th>
<th>Date/Time</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class quizzes / homework</td>
<td>TBD</td>
<td>60</td>
</tr>
<tr>
<td>Midterm</td>
<td>Wed, 10/21/15, 2:30-3:20</td>
<td>115</td>
</tr>
<tr>
<td>Final</td>
<td>Wed, 12/16/15, 1:30-3:30</td>
<td>175</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>350</strong></td>
</tr>
</tbody>
</table>
Examinations and Quizzes

- In-class or online quizzes and homework assignments will be held throughout the semester at the instructor's discretion and worth a total of 60 points. There will be 8 quizzes and assignments combined, and the best 6 will be counted towards final grades.
- You should come to class prepared for every lecture,
- This includes bringing your own calculator.
- There will be no make-up quizzes.
- Consult with D2L prior to each meeting date to stay current with class requirements (including online quizzes).
- The mid-term and final exams will be comprehensive to-date.
- There will be no make-ups for Mid-Term exam. The final exam will substitute for the mid-term exam (re-scaled to the appropriate number of points). This will only be allowed with prior approval and/or appropriate documentation per university guidelines.

Extra Points

There will be a total of 20 points for participation in class using iClicker activities. The 20 points will be divided into two sets of 10 each. The first set is for questions covering the start of the semester till midterm examination and the second set is after the midterm examination till the finals. The points are decided based on the level of participation (not the right answers), with 75% participation receiving full 10 points. These extra points will be assessed only two times during the course, once after the midterm examination and once after the final examination.
Adjustments for Pregnancy/Childbirth Related Issues
Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact me as soon as possible to discuss. Generally, modifications will be made where medically necessary and similar in scope to accommodations based on temporary disability. Please see [www.ou.edu/content/eoo/faqs/pregnancy-faqs.html](http://www.ou.edu/content/eoo/faqs/pregnancy-faqs.html) for commonly asked questions.

Title IX Resources
For any concerns regarding gender-based discrimination, sexual harassment, sexual misconduct, stalking, or intimate partner violence, the University offers a variety of resources, including advocates on-call 24/7, counseling services, mutual no contact orders, scheduling adjustments and disciplinary sanctions against the perpetrator. Please contact the Sexual Misconduct Office 405-325-2215 (8-5) or the Sexual Assault Response Team 405-615-0013 (24.7) to learn more or to report an incident.

Academic Integrity
All students are expected to conform to college-level standards of ethics, academic integrity, and academic honesty. By enrolling in this course, you agree to be bound by the Academic Misconduct Code published in The University of Oklahoma Student Code ([http://studentconduct.ou.edu/](http://studentconduct.ou.edu/)). Please see [http://integrity.ou.edu](http://integrity.ou.edu) for more information.

All members of the community recognize the necessity of being honest with themselves and with others. Cheating in class, plagiarizing, lying and employing other modes of deceit diminish the integrity of the educational experience. None of these should be used as a strategy to obtain a false sense of success. The need for honest relations among all members of the community is essential.

Religious Observance
It is the policy of the University to excuse the absences of students that result form religious observances and to reschedule examinations and additional required classwork that may fall on religious holidays. Schedule conflicts such as these should be brought to the instructor's attention at the beginning of the semester.

Reasonable Accommodation Policy
Students requiring academic accommodation should contact the Disability Resource Center for assistance at (405) 325-3852 or TDD: (405) 325-4173. For more information please see the Disability Resource Center website [http://www.ou.edu/drc/home.html](http://www.ou.edu/drc/home.html).

Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.

**PLEASE NOTE:**
This syllabus is a guide. The instructor reserves the right to change by addition and/or subtraction any and/or all materials contained in this syllabus. This includes, but is not limited to, course content, assignments, due dates, and portion(s) of the grade assigned to individual items within this course.