Class Syllabus
Spring 2018
CHE 454_001/454L_020
Biochemical Techniques

<table>
<thead>
<tr>
<th>Instructor’s Name</th>
<th>Dr. ‘Tayo Odunuga</th>
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<tbody>
<tr>
<td>Department</td>
<td>Chemistry &amp; Biochemistry</td>
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<td>Email</td>
<td><a href="mailto:odunugao@sfasu.edu">odunugao@sfasu.edu</a></td>
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<td>Phone</td>
<td>936-468-6468</td>
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<tr>
<td>Office</td>
<td>Math 122</td>
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<tr>
<td>Office Hours</td>
<td>M, 9-10 a.m. &amp; 1-2 p.m., T – F, 9-10 a.m.</td>
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<td>Class Time</td>
<td>R, 12:30 – 4:20 p.m.; F, 1:00 – 3:50 p.m.</td>
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<td>Classroom</td>
<td>Room 132, Math. Bldg.</td>
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**Required Texts and other materials:** Any standard biochemistry and/or biochemical laboratory textbook can be consulted. Additional resources are available online. The student will be required to purchase a laboratory notebook and a calculator. Graphing materials may also be needed.

**Method of Evaluation:**

- 10% x 6 modules (Labnote = 80%; completion = 20%) 60%
- Comprehensive Final Exam 15%
- Written scientific report 15%
- Survey 3%
- Professionalism 7%

A = 90 – 100%, B = 80 – 89%, C = 70 – 79%, D = 60 – 69%, F ≤ 59%

**Module:** Each module will consist of a related set of experiments performed tentatively over a period of two weeks (see course calendar below). The module will be graded based on (1) Laboratory Notebook (80%) and (2) completion of module (20%).

**Laboratory Notebook:** At the end of each module, laboratory notebooks will be turned in by noon on Monday following the last laboratory. It will be graded and returned to the student on Wednesday of the same week by noon. **Late submission of lab notebook will result in 10% point deduction for each day.**

**General laboratory notebook outline**

1. Title
2. Date
3. Name(s) of Partner(s) if applicable
4. Short but relevant introduction with references if necessary
5. List of reagents and brief description of preparation
6. Procedure: flowchart, bullets, diagrams
7. Expected results?
8. Actual results (data) presented in appropriate format
9. Discussion and Conclusion
10. Continuity – what to do next
Criteria for grading laboratory notebook

1. Organization – see above
2. Legibility
3. Neatness
4. Amount of content
5. Reproducibility

Hint on keeping a good lab notebook: write rough draft entries in a scratch notebook and transfer into your lab notebook later. Laboratory notebook will constitute 45% of the total points for the course.

Generation of working protocols: In some labs, students may be required to generate a working ready-to-go protocol which must be approved by the professor. Students will not be allowed to do those experiments without approved protocols.

Comprehensive Final Exam: A comprehensive final exam will be given on May 3.

Written Report: Students will be required to submit a formal scientific report on their project. The report must contain a minimum of 6 text pages; pages containing data and references are separate. The paper is to be 12 point new times roman font with one inch margins. A separate page containing title of project (maximum 20 words long), name and affiliation of student and an abstract (150 – 250 words long) is required and does not count toward the minimum page requirement. Pages are to be numbered in the lower right-hand corner of the sheet. A minimum of 10 current (≤ 10 years) peer-reviewed journal articles are to be used. The paper should follow the format in the Journal of Biological Chemistry author’s guidelines.

Professionalism: This includes keeping deadlines, promptness to lab, good lab behavior, following instructions etc.

Attendance Policy: Two or more unexcused absences will result in an ‘F’ for the course. Absences may be assigned to anyone that disrupts class/lab, sleeps in class/lab, or consistently comes in late or leaves early.

Academic Honesty Policy: Cheating in any form will result in an ‘F’ in the course and further action by the University. Plagiarism in any form is not tolerated and will be punished severely.

Academic Disabilities Policy: If you have a certified disability, registered with the Office of Disability Services at 468-3004 and need accommodations for this course, it is your responsibility to notify me by the third class day.

Classroom Behavior Policy:

- Unexcused absences may be assigned to anyone that disrupts class, sleeps in class, or consistently comes in late or leaves early. This is college; everyone is expected to behave professionally.
- Phone must be turned off during class/lab. After one interruption, any subsequent phone interruption will be assigned an unexcused absence.
- Text messaging is a disruption. Anyone text messaging during class will have an unexcused absence assigned to them. Read Attendance Policy Section for how this can affect grades.

Note: this syllabus may be altered at the discretion of the Instructor. Students will be duly informed of any changes.

Dr. ‘Tayo Odunuga, January 18, 2018
<table>
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<tr>
<th>Week</th>
<th>Activities/Experiment/Module</th>
<th>Comments</th>
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| Jan 18 - 19 | Introduction, planning and class discussion  
Articles assigned for reading                                                                                     |                                                                          |
| Jan 25– 26 Module 1: Report in separate sheets | **Honoring Skills:** Lecture on Module 2 (Bioinformatics), Agarose and protein gel preparation and loading, pipetting skills-Bradford assay, UV and fluorimeter operation, calculations-purification table, kinetics, protein molar concentration and buffer calculations | Students submit Introduction to Formal Report on February 9 |
| Feb 1 – 2 Feb 8 - 9 | **Module 2:** Bioinformatic analysis of albumin sequences, structure modeling (if not available), Lecture on Module 3 (Albumin purification), students develop protocols for module 3 | Students submit Methods on Bioinformatic analysis and Albumin purification for Formal Report on Feb 23 |
| Feb 15 – 16 Feb 22 - 23 | **Module 3:** Albumin purification; lecture on albumin prep contaminants                                                                                   | Students submit Result and discussion sections Bioinformatic and Purification and Methods on Contaminant Analysis of Albumin |
| Mar 1 – 2 Mar 8 - 9 | **Module 4:** Analysis of major contaminants in albumin purification; lecture on Structural analysis of purified albumin                                         | Students submit Result and discussion sections on Contaminant Analysis and Methods on Structural Analysis |
| Mar 22 – 23 Apr 5 - 6 | **Module 5:** Structural Analysis of purified albumin – fluorescence, limited proteolysis, unfolding monitoring at 230 nm, dynamic size using gel filtration (generate graph with standards) etc., lecture on esterase activity | Students submit Result and discussion sections on Structural Analysis and Methods on Esterase Activity |
| Apr 12 – 13 Apr 19 - 20 | **Module 6:** Esterase activity of purified albumin                                                                                                        | Students submit Result and discussion sections on Structural Analysis and Methods on Esterase Activity |
| Apr 26 - 27 | Formal Written Report week                                                                                                                                 | Student submit formal written report                                      |
| May 3  | Final Exam                                                                                                                                                  |                                                                          |