COURSE DESCRIPTION: This course provides a study of the principles and applications of biochemistry including proteomics, genomics, lipidomics, enzymology, structural biology, bioinformatics etc. The purpose of the course is to provide students additional information and in-depth problem solving on material covered in the Biochemistry I course.

NUMBER OF CREDIT HOURS: 1 semester hour

PREREQUISITES: CHEM 3030/3130L (CHEM 330/330L) or CHEM 3331/3231L (CHEM 331/331L) with a ‘C’ or better. Note that both of these courses also have prerequisites of CHEM 1311 and 1312 with a ‘C’ or better in each.

GENERAL EDUCATION CORE CURRICULUM OBJECTIVES: There are no specific general education core curriculum objectives in this course. This course is not a general education core curriculum course.

COURSE OBJECTIVES: Students should achieve the learning outcomes of essential topics in biochemistry including but not limited to: amino acids, protein structure/function, protein techniques, nucleic acid structure/function, nucleic acid techniques, enzymes, enzyme kinetics, cell membranes/transport, carbohydrates, and metabolism. Students should be able to integrate this knowledge with critical thinking to solve integrated and data interpretation problems and be able to present scientific information through written and oral communication.

STUDENT LEARNING OUTCOMES: The student is expected to:

• categorize and connect terminology used in biochemistry especially in relation to proteins, enzymes, DNA/RNA, and other biological molecules, and metabolism (PLO 1)

• integrate and apply biochemical terminology, chemical, biochemical, and mathematical concepts to solving advanced integrated and data interpretation problems in biochemistry (PLO 1, 2)

• effectively communicate biochemical concepts utilizing knowledge gained in the course and from knowledge gained in other courses (PLO 3)

OUTLINE OF TOPICS (APPROXIMATE COURSE TIME): See Course Calendar below.
FORMAT OF DELIVERY: The course will be taught face-to-face (50%) and via livestream (50%). Students are required to attend face-to-face on days that quizzes and exams are given (see Course Calendar below for dates). Students have the choice of face-to-face or livestream on other days.

TEXT AND MATERIALS: Homework System: Achieve More by Macmillan Learning; Text: Biochemistry 9th ed. by Berg, Tymoczko, Gatto, Stryer. The e-text for the book is included in the price of the Achieve Homework system. Information and announcements will be posted and/or mailed to students via D2L. Students must check D2L and their emails regularly.

COURSE CALENDAR

<table>
<thead>
<tr>
<th>Week</th>
<th>dates</th>
<th>Class Activities</th>
<th>Approx. Time</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8/26</td>
<td>Review and Problem solving – general and organic chemistry concepts, thermodynamics etc. – Chapter 1</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9/02</td>
<td>Problem solving and case studies – water chemistry, buffer and titration – chapter 1</td>
<td>5%</td>
<td>Quiz 1</td>
</tr>
<tr>
<td>3</td>
<td>9/09</td>
<td>Lecture – exploring proteins and proteomes – chapter 3</td>
<td>9%</td>
<td>Assignment 1 due</td>
</tr>
<tr>
<td>4</td>
<td>9/16</td>
<td>Lecture – hemoglobin: portrait of a protein in action – chapter 7</td>
<td>9%</td>
<td>Quiz 2</td>
</tr>
<tr>
<td>5</td>
<td>9/23</td>
<td>Problem solving and case studies – exploring proteins and proteomes – chapter 3</td>
<td>9%</td>
<td>Assignment 2 due</td>
</tr>
<tr>
<td>6</td>
<td>9/30</td>
<td>Problem solving and case studies – hemoglobin: portrait of a protein in action – chapter 7</td>
<td>9%</td>
<td>Quiz 3</td>
</tr>
<tr>
<td>7</td>
<td>10/07</td>
<td>Exam 1 – cumulative – 8/26 to 9/30</td>
<td>Assignment 3 due</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>10/14</td>
<td>Lecture – exploring genes and genomes – chapter 5</td>
<td>9%</td>
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<tr>
<td>9</td>
<td>10/21</td>
<td>Problem solving and case studies – exploring genes and genomes – chapter 5</td>
<td>9%</td>
<td>Quiz 4</td>
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<tr>
<td>10</td>
<td>10/28</td>
<td>Lecture – exploring evolution and bioinformatics – chapter 6</td>
<td>9%</td>
<td>Assignment 4 due</td>
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<tr>
<td>11</td>
<td>11/04</td>
<td>Problem solving and case studies – exploring evolution and bioinformatics – chapter 6</td>
<td>9%</td>
<td>Quiz 5</td>
</tr>
<tr>
<td>12</td>
<td>11/11</td>
<td>Lecture – Drug Development – chapter 28</td>
<td>9%</td>
<td>Assignment 5 due</td>
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<tr>
<td>13</td>
<td>11/18</td>
<td>Problem solving and case studies – Drug Development – chapter 28</td>
<td>9%</td>
<td>Quiz 6</td>
</tr>
<tr>
<td>14</td>
<td>12/02</td>
<td>Exam 2 – cumulative – 10/14 to 11/18</td>
<td>Assignment 6 due</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>12/09</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
GRADING POLICY:

Assignments – The due dates for assignments are shown on course calendar.

Quizzes – The dates quizzes will be given are shown on the course calendar.

Exams – There will be two cumulative exams. The exam dates are indicated on the course calendar. A

Participation/Professionalism – Unexplained absences, disrupting class, not working well with a group, etc. will lead to a deduction of points. Students will be notified via email when points are deducted.

Method of Evaluation/Assessment – The final grade will be based upon the number of points obtained in the following:

<table>
<thead>
<tr>
<th>Item</th>
<th>Value Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>40</td>
</tr>
<tr>
<td>Participation/Professionalism</td>
<td>20</td>
</tr>
<tr>
<td>Quizzes</td>
<td>40</td>
</tr>
<tr>
<td>Exams</td>
<td>100</td>
</tr>
<tr>
<td>TOTAL PTS</td>
<td>200</td>
</tr>
</tbody>
</table>

Grading Scale (200 total points)

≥180 = A;  ≥ 160 = B;  ≥ 140 = C;  ≥ 120 = D; < 119 = F

Other grading policies

The instructor reserves the right to regrade an entire item if the student requests for a regrade on one part.

ATTENDANCE POLICY:

Attendance of class is mandatory. Three (3) or more absences will result in an ‘F’ for the course. Absences may be assigned to anyone that disrupts class, sleeps in class, or consistently comes in late or leaves early.

CLASSROOM BEHAVIOR POLICY:

➢ The student code of conduct policy is located at: [http://www.sfasu.edu/policies/student-code-of-conduct-10.4.pdf](http://www.sfasu.edu/policies/student-code-of-conduct-10.4.pdf)
➢ Wearing a face covering when participating face to face
➢ Professional behavior is expected at all times and includes coming to class prepared and on time.
➢ Students using livestream to attend class should behave as though they are in class. Please turn on cameras and mute microphones until asking or answering a question.
➢ Learning biochemistry is NOT a spectator sport. It takes involvement and participation in learning. Preparation for class should take 2-3 hours outside of class and includes
  o reviewing material from previous class & reading material before coming to class
practicing active recall, understanding terms, making connection between concepts, quizzing yourself
completing assignment ins Achieve More (homework, learning catalytics, reading quizzes)
working problems at the end of the chapter in the textbook
studying for exams
working on writing assignment

➢ Contribute to class discussions and group assignments.
➢ Absences may be assigned to anyone who disrupts class. Read Attendance Policy Section for how this can affect grades.
➢ Bring a scientific calculator.
➢ Silence phones and put away unless we are using them as a part of class.
➢ Be courteous and respectful of other students and instructor.
➢ Students who violate these rules will be asked to leave. Repeat offenders will be subject to disciplinary action in accordance with University policies as described in the Code of Student Conduct.

ACADEMIC INTEGRITY (A-9.1):

Definition of Academic Dishonesty: Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

The academic dishonesty policy is located at http://www.sfasu.edu/policies/4.1-student-academic-dishonesty.pdf. Any student found cheating will be subject to the penalties as stated in the Student Code of Conduct handbook; including but not limited to a score of zero on exam, expulsion from the class or expulsion from the University.

Any student found cheating will be subject to the penalties as stated in the policy noted above; including but not limited to a score of zero on exam, expulsion from the class or expulsion from the University. I will give a zero on any assignment/exam/quiz for cheating and will recommend expulsion from the university. I will also notify the department chair/unit head of a student’s major and/or attribute.

WITHHELD GRADES SEMESTER GRADES POLICY (A-54):

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. The circumstances precipitating the request must have occurred after the last day in which a student
could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

**STUDENTS WITH DISABILITIES:**
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to Disability Services.

**MENTAL HEALTH:**
SFASU values students’ mental health and the role it plays in academic and overall student success. SFA provides a variety of resources to support students' mental health and wellness. Many of these resources are free, and all of them are confidential.

On-campus Resources:
SFASU Counseling Services
www.sfasu.edu/counselingservices
3rd Floor Rusk Building: 936-468-2401

SFASU Human Services Counseling Clinic
www.sfasu.edu/humanservices/139.asp
Human Services Room 202: 936-468-1041

Crisis Resources:
Burke 24-hour crisis line 1(800) 392-8343
Suicide Prevention Lifeline 1(800) 273-TALK (8255)
Crisis Text Line: Text HELLO to 741-741

**COVID-19 INFORMATION**
Please visit [https://www.sfasu.edu/covid19](https://www.sfasu.edu/covid19) for detailed information about Covid-19 protocols on SFA campus.

**Note:** The professor reserves the right to alter the syllabus due to weather, university events, or for improved student learning. Students will be notified of any changes to the syllabus in class and/or via email.

Dr. ‘Tayo Odunuga
August 13, 2021