Syllabus - Fall 2014

Department:  Chemistry and Biochemistry
Course Number/Section:  CHEM 1308-01
Course Title:  Biochemistry for Allied Health Science
Professor:  Dr. Shyam S. Shukla
Office 121K Chemistry
880-8269
shyam.shukla@lamar.edu
Office Hours:  MTWThF 9:15-9:45, 11:15-12:00 Noon (other times by appointment)

Course Description

Elementary survey of structure, function and metabolic processes of molecules in organisms. Designed for students majoring in health sciences.

Prerequisites

CHEM 1306 and CHEM 1106

Required/Optional Texts and/or Course Materials

Chemistry : An Introduction to General, Organic, and Biological Chemistry with the Chemistry Place CD-ROM (11th Edition) (Hardcover) by Karen C. Timberlake, Benjamin Cummings.

Course Outcomes

Learning Outcomes:

Students will leave the course with the theoretical and laboratory skills which will be helpful to profession of students majoring in health sciences. The students will emerge with knowledge, experience and understanding of:

- Organic Chemistry (survey only)
- Carbohydrates
- Lipids
• Amino Acids, Proteins, Enzymes
• Nucleic Acids and Protein Synthesis
• Metabolic Pathways and Energy Production

Core Curriculum Objectives:

• Life and Physical Sciences (critical thinking, communication, empirical and quantitative skills, teamwork)

1. Scientific Observations, Laws, and Theories

Students will prepare an essay explaining the relationship of scientific observations, laws, and theories using a course content relevant example suggested and agreed to by the instructors of all sections of the course. Faculty will use a rubric to assess scientific understanding, written communication skills, and critical thinking skills.

2. Chemical Calculations and Meanings

Students will document the solution of a course content relevant chemical calculation problem suggested and agreed to by the instructors of all sections of the course. Students will interpret the meaning of the results obtained. Faculty will use a rubric to assess scientific understanding, critical thinking skills and empirical and quantitative skills.

3. Chemical Use - Benefits and Hazards

Students will prepare an group presentation explaining the relative benefits and hazards of a contemporary, course relevant issue suggested and agreed to by the instructors of all sections of the course. Faculty will use a rubric to assess scientific understanding, understanding of the interactions of natural phenomena, communication skills, and teamwork.

Classroom Management Policies

Disability accommodation: It is the policy of Lamar University to accommodate students with disabilities, pursuant to federal and state law, and the University’s commitment to equal educational opportunities. It is the student’s responsibility to register with Lamar’s Disability Support Services (880-8347), In Communication Bldg. 105, as quickly as possible. Any student who feels s/he may need an accommodation based on the impact of a disability should contact the professor directly during the first week of the course.

Academic Honesty: Engaging in academic dishonesty as defined and described under Academic Affairs in the student handbook will result in immediate suspension from class and a course grade of F.
**Attendance:** Regular class attendance is important to the attainment of the educational objectives of the University. Attendance will be checked daily (see federal policies).

**Federal Policies**
**Title IV Policy**
Each semester, every faculty member will be required to check attendance records, and then indicate any student who is no longer attending the class. The checked rolls will be signed by the faculty member and returned to the Registrar’s office.

**FERPA**
*(Family Educational Rights Privacy Act of 1972):* Due to the privacy laws regarding student grades in FERPA a student's grades cannot be discussed with anyone other than the student - no one else including parents and/or friends. This includes emails, voice mails, over the phone, answering services, etc. Therefore, the student must appear in person to insure identity and can only get their grade.

**My Lamar and Blackboard**
Each student enrolled in this class has an account on “my Lamar”. All announcements, assignments, Power Points used in the lecture, etc. will be posted on Blackboard.

**Lecture**
Lectures will be conducted using Power Point and chalk. I have posted copies of the PP on Blackboard.

**Student Participation**
Student participation is highly encouraged but disruptive behavior will not be allowed.

**Academic Calendar**
http://www.lamar.edu/academic-calendar
Students may drop or withdraw without penalty until the dates posted on official calendar

**Blackboard:**
Please note that any communication or updates with the whole class will be done using "announcements" on Blackboard.

You will find the following under course content in Blackboard

- PowerPoints for all the chapters
- Clicker problems for all the chapters
- End-of-the-chapter problems
- Some important equations
Grading and Evaluation

Assignments:

<table>
<thead>
<tr>
<th>EXAMS:</th>
<th>NUMBER</th>
<th>PERCENTAGE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXAMS:</td>
<td>1</td>
<td>25%</td>
<td>to be assigned</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>25%</td>
<td>to be assigned</td>
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<tr>
<td></td>
<td>3</td>
<td>25%</td>
<td>to be assigned</td>
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<tr>
<td></td>
<td>4 (Final)</td>
<td>25%</td>
<td>see official calendar</td>
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<tr>
<td>Bonus project</td>
<td>3%</td>
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Bonus Project

Bonus project is voluntary and will be Power Point type presentation or Mastering Chemistry. The basic idea of the project is that it will stimulate research and interest into the cutting edge technology and science in the areas of subject matter that we will be talking in the class. The presentation will be 8-10 minutes long and will be prepared on the basis of the information that student gathers from various sources such as journals, magazines, newspapers, Internet. A student can suggest a topic by email containing a brief discussion about the chosen topic or a topic can be assigned. MasteringChemistry is publisher software that allows you to practice questions for each chapter. The software keeps track of your score and if you score 80% or better you get 3% bonus

Types of Exam

All exams will be multiple choice type. Exams will have 30-50 questions. You can use only periodic table and a non-graphing calculator. No other electronic or other device allowed.

You can use the exam itself as scratch paper but you must submit the exam, Scranton and periodic table after the exam. The Scranton will be returned back to you after recording the grade. I WILL ONLY KEEP WITH ME A RECORD OF YOUR GRADE AND THE COPY OF THE EXAM WILL BE SHREDDED AFTER TWO WEEKS OF THE EXAM.

Make-up Exam

There are no make-up exams. Under undue circumstances (a proof must be submitted), the FINAL EXAM will be increased to compensate for the missed exam.

How to Calculate your courses average

Each exam and lab is worth the same. Suppose your grades (# of correct answers on Scantron in Pink Number on upper right hand corner) are:
Number of Correct Answers | Maximum Number of Questions
--- | ---
C1 | E1
C2 | E2
C3 | E3
C4 | E4

Course Average = \[
\frac{(C1/E1)\times 100 + (C2/E2)\times 100 + (C3/E3)\times 100 + (C4/E4)\times 100}{\# \text{ of Exams which is } 4}
\] / # of Exams which is 4 for the whole course

Add Bonus % (which is three if you choose to do the project) to this average to get overall average.

**Grade:** Based entirely on Exams, Mastering Chemistry (Bonus)

\[
\frac{\text{[exam (1+2+3+4)]}}{4} + \text{Bonus}
\]

- A ...........90 - 100+
- B ...........80 - 89
- C ...........70 – 79
- D ...........60 - 69
- F ...........0 – 59 average.

**Course Outline**

**Topics**
Survey of Organic Chemistry from the following three chapters:
- Chapter 10: Introduction to Organic Chemistry: Alkane
- Chapter 12: Unsaturated Hydrocarbons (alkene)
- Chapter 13: Organic Compounds with Oxygen and Sulfurs
- Chapter 14: Carbohydrates
- Chapter 15: Lipids
- Chapter 16: Amino Acids, Proteins, Enzymes
- Chapter 17: Nucleic Acids and Protein Synthesis
- Chapter 18: Metabolic Pathways and Energy Production