CHEM 1451 Chemistry for Health Sciences
Section 500 Online Academic Partnership (AP) Course 15-Week

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Course Description: Survey of general, organic, and biochemistry with emphasis on applications to the human body. Measurement, atomic theory and structure, bonding, quantitative relationships in chemical reactions, gases, solutions, electrolytes, organic functional groups and nomenclature, organic reactions, carbohydrates, lipids, proteins, enzymes, metabolism, and nucleic acids.

Required Materials:
1) **The textbook** is "*Chemistry: An Introduction to General, Organic and Biological Chemistry* (11th edition)" by Karen C. Timberlake, Prentice Hall (2011) (available at www.uta.edu/bookstore). Whatever option (hard copy or e-book) you choose, make sure to have an access to the content of the textbook. The textbook is reserved in the central library. Only this textbook is supported in this course. No other textbook is supported. My recommendation is to buy the e-book and the access code bundled directly at the website www.masteringchemistry.com or to use the reserved book and buy only the access code. Keep in mind that rental/used textbook does not come with an access code to the online homework system.
2) **Access to the online homework system:** Read the instructions for Online Homework Registration under "Homework (General Info)" in the course menu.
3) **The laboratory manual** is available free online within your course shell as part of your online materials.
4) **Laboratory Kit** available at www.uta.edu/bookstore (**required, not optional and no exception**).
5) **Chemicals:** You must supply chemicals (mostly household items such as salt) and some equipment (household items such as paper towel) by yourself. **Exception:** In the Module 3 experiment, you need "Citric acid (Must be 100% pure)" (10 g at least). This is the only chemical that may not be readily available in a grocery store. During canning season, you can find it in a grocery store, but that's not always a case. You may find it in a health store or need to order it online. Since the online order may take more time than running to a store nearby, you should plan ahead to make citric acid available for the Module 3 experiment.
6) **A scientific calculator with the mathematical logarithmic function**.
7) **Access to a printer and access to a device that can make acceptable digital images** (scanner or copy machine with fax capability, etc.). Scans of lab reports will be uploaded to your course shell for grading. Make sure to use the **PDF** format for submitting your report.

Course Prerequisites: This online course is intended ONLY for students pursuing a career in AP nursing program, and all students should have completed MATH 1301, 1302 (College Algebra) or equivalent. To receive credit for CHEM 1451, you must also be enrolled in CHEM 1451 lab. CHEM 1451 cannot be counted for major credit toward a degree in science or engineering.

Student Learning Outcomes: Upon completing the course, the student should be able to understand major concepts in general, organic and biochemistry. (More detailed learning objectives are given in separate handout available in Blackboard course sites.)
1) (**General Chemistry**) To understand scientific measurement, atomic theory and structure, chemical bonding, quantitative relationship in chemical reactions, and acid-base chemistry.
2) (**Organic Chemistry**) To understand nomenclature, chemical reactions and properties of organic compounds.
3) (**Biochemistry**) To understand molecular structures, chemical reactions and properties of carbohydrates, lipids, and proteins.

Other Requirements:
1) Accomplish all lecture assignments and lab assignments. A very strong correlation exists between regular study and success in Chemistry 1451. Perform all assignments in order. Because the topics covered in this course build on each other, missing even one assignment can mean the difference between success and failure in the course.
2) Read the chapter in your textbook, prior to viewing the PowerPoint presentation.
3) Take your own notes (You can use the activity sheets for each chapter provided in the online course shell.) as you read a chapter or view a PowerPoint presentation. Then review your notes afterwards. Correct obvious errors and note topics which require further study or clarification.
4) **Spend the necessary amount of time studying chemistry.** For courses on-campus, the rule of thumb for succeeding in Chemistry is three hours of study for every hour of lecture. Since there are 3 hours of lecture per week on campus, this means that at **a minimum** you should plan to study Chemistry an additional 9 hours each week on your own, for a total of 12 contact hours of with Chemistry per week. Similarly, for this online course, you should expect to spend about **12 hours per week** studying Chemistry, in order to succeed in this course.
5) Do not procrastinate. These concepts take time to sink in, and you may have to practice these exercises over a period of many days in order master the necessary skills.

Grading Policy: The grade in this course will be determined in the following manner.

Laboratory Average*	25%
7 Exams	65%
Homework	10%
Course Grade	**100%**

*Your Laboratory Average will be determined in the following manner.

Pre-Lab Assignment	30%
Post-Lab Report	70%
Laboratory Average	**100%**

All numerical grades are calculated by rounding them off to **two decimal places**: If the digit to be removed is less than five, then it is rounded down. If the digit to be removed is equal to or larger than five, then it is rounded up. For example, if your calculated final grade is 89.5649…, then your final grade is less than 89.56. Grades will be assigned according to the following scale.

Total Numerical Grade	**Letter Grade**
90 and above	A
80 to less than 90	B
70 to less than 80	C
60 to less than 70	D
Below 60	F

Major Assignments and Examinations
By the end of the first week (Friday Noon), a student must pass all five tasks (Syllabus Quiz, Lab Safety Training, Pre-Lab 000, Post-Lab 000, and Exam 0) **in order to continue this course** and complete the introductory online homework assignment in **Module 0**. Failure to pass all five tasks may preclude the participation in the graded modules for which a grade is assigned. In and ONLY IN Module 0, you are allowed to repeat five tasks (not including the online homework assignment) until you pass them. Seven graded modules will be given from the second week to the last day of classes: Each module consists of homework assignments, one experiment and one exam. Web-based homework problems will be assigned and graded. More information (Registration, Login and Grading Policy) about the online homework system will be given in the Blackboard course site. None of homework assignments will be dropped. All due dates for homework assignments are directly available on the online homework site. You will be responsible for checking them and completing them by the due dates.

Lab Grades
1) **You must receive at least a 60% in Lab Average to be eligible to pass the course. In other words, if your final lab average is below 60%, then you will automatically receive F in this course.**
2) The Lab Assignment (Pre-Lab and Post-Lab) is due on the date specified in the lab schedule. Each report (Pre-Lab and Post-Lab) is worth 100 points. If you turn in reports late, you will be penalized points, at **a rate of 2 point per hour**. Effectively, after two days late, you will have been penalized all the possible points for that assignment.
3) **(IMPORTANT)** All work, with the exception of computer-generated graphs, must be original and handwritten: You must be a sole person who performs all experiments and completes all reports during this semester. Group work toward experiments is not allowed in this course. **If you are re-taking this course,** you must repeat all experiments, answer all questions and write all reports this semester. You **CANNOT** recycle any parts of experiments and reports from pervious semesters. Recycling them is considered as academic dishonesty in this course and is prosecuted as such because this syllabus states that you must repeat every experiment, answer every question and write every part of reports every semester**. If you are re-taking this course,** you must approach each pre-lab and post-lab question anew every semester: If you simply copy your own solution from a previous semester, DO NOT expect to receive exactly the same grade in this semester: You may receive different scores if undetected errors in your answer are found and/or if grading standards are changed.
4) You will make an image of your Pre-Lab assignment and Post-Lab Reports (by using a scanner). All images must be uploaded to the course website before or on the due date listed in the lab schedule. **Use the PDF format.**
5) Your lowest Pre-Lab grade and Post-Lab grade will be dropped. Additional missed labs will receive zero credit. Any zero resulting from Academic Dishonesty is not eligible to be the lowest grade dropped. No extension to the due date will be given.
6) Do not turn in a report for an experiment which you did not perform yourself. This is considered cheating and will be addressed as such. Do not share any data among other students. Each student must perform an experiment independently. Group experiment work is not allowed, is considered cheating and will be addressed as such.

7) If you drop or fail Chemistry 1451, any grades earned in a previous semester (exams, labs and homework) cannot be carried over when you re-take Chemistry 1451. You must complete all lab assignments and homework assignments a new in the current semester.

Exam Grades

1) Seven exams will be given. These exams will cover the readings, lecture material, homework, and assigned problems.
2) (**Make-up Exam Policy**) No make-up exams will be given, and any missed exam will result in a grade of zero. However, the last exam (exam 7) score will replace the lowest exam score among previous six exams if it is to the student's benefit. For example, if you miss an exam, then the zero credit of your missed exam will be replaced by the 7th exam score. Note that the exam 7 score will not be replaced. **Therefore, the policy is NOT equivalent to dropping the lowest score.**
3) There will be no curving on exams or no extra credit assignments in this course.
4) You cannot exceed the allowed time for an exam.

Homework Grades

Web-based homework problems will be assigned. More information will be given within the online course shell. No extension to the homework assignment due date will be given. Students must practice them for succeeding in this course. No homework score will be dropped.

Extra Credits

Web-based extra credit problems will be assigned. At the end of the semester, 10% of the average score of extra credit assignments will be added to the course grade. No extension to the extra credit assignment due date will be given. No score will be dropped. Students are encouraged to complete extra credit assignments because you will improve your grade by learning the materials more.

Lab Safety:

Mandatory Online Lab Safety Training

Students registered for this course must complete the University's required "Lab Safety Training" prior to performing the first experiment of this course. The UTA University Compliance Services mini-course study materials and tests for its 'Student Lab Safety Training' have been imported into this Blackboard course. Students who have not successfully completed this training mini-course by census date may be dropped from the lab (and consequently the lecture). To successfully complete this Lab Safety Training mini-course, you must pass the two short tests associated with the training. You must receive a perfect score of 100% in order to pass each of these tests. (You can repeat the tests until you receive 100%: This is only for Module 0)

The "Lab Safety Training" mini-course is located in **Module 0** and in the folder entitled "**Lab Safety Training**."

Until all required Lab Safety Training is completed, a student will not be given access to the lab assignments, will not be able to participate in any lab activities, and will earn a grade of zero for any uncompleted work.

Safety Guidelines

IMPORTANT! You will be exposed to chemicals in this class. Personal protective equipment (PPE) is necessary to protect your body. You must follow the guidelines described below. If you violate any of the following guidelines, you may be seriously injured.
1. Goggles, gloves and aprons are **required at all times**.
2. Shoes that cover **the entire foot are required at all times**.
3. Long pants and sleeves are **highly recommended**.
4. Musical or other entertainment devices (include cell phones) **should not be used** when you are performing experiments.

Students with Pregnancies

For students who are pregnant, it is recommended by the Chemistry and Biochemistry Department that you do not enroll into a chemistry lab at this time. If you become pregnant during the semester, we recommend dropping the course as soon as possible; and special provisions will be made to assist you in finishing the course at a later date. *Please consult your faculty advisor for assistance.*

Other Course Policies:

Blackboard (Course Shell)
Students are responsible for checking the blackboard course website (https://elearn.uta.edu/) as well as their UTA email (the one ending in "mavs.uta.edu") for correspondence and announcements related to the course. Instructional materials (videos, activity sheets, study guides, and lab manual) will be posted on the course website.

Drop Policy
Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

Americans with Disabilities Act
The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA).* All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX
The University of Texas at Arlington is committed to upholding U.S. Federal Law "Title IX" such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit www.uta.edu/titleIX.

Academic Integrity
Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.
I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Electronic Communication
UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey
At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Resources

1) You will be able to communicate with your **Coach** for your questions.
2) For those who are able to visit the UTA campus, **the Chemistry Clinic** is located in Room 318 Science Hall and will be staffed with tutors (free services) available to answer your questions related to lecture and homework. Hours of the Chemistry Clinic will be announced on the front door of Room 318 SH. Also, **University College** (located in 205 Ransom Hall on UTA campus) offers free academic support for qualifying students and low-cost services for all students, including Cost Share Tutoring.

Course Schedule:

There are eight modules in this course. All modules are required. You must complete all requirements in Module 0 to stay in this course and move on to Modules 1 – 7.

Module 0	**Module 1 (Ch 1 and 2)**	**Module 2 (Ch 3 and 4)**	**Module 3 (Ch 5 and 7)**
Week 1: Jan 19 – Jan 23	Week 2: Jan 24 – Jan 30	Week 4: Feb 07 – Feb 13	Week 6: Feb 21 – Feb 27
Required	Week 3: Jan 31 – Feb 06	Week 5: Feb 14 – Feb 20	Week 7: Feb 28 – Mar 06

Module 4 (Ch 8)	**Module 5 (Ch 10 and 11)**	**Module 6 (Ch 12 and 14)**	**Module 7 (Ch 13, 15, 16)**
Week 8: Mar 07 – Mar 13	Week 10: Mar 21 – Mar 27	Week 12: Apr 04 – Apr 10	Week 14: Apr 18 – Apr 24
Week 9: Mar 14 – Mar 20	Week 11: Mar 28 – Apr 03	Week 13: Apr 11 – Apr 17	Week 15: Apr 25 – May 01

Important Dates

January 19	Course Start Date
January 30	Census Date
March 27	Last Day to Drop Classes (Please review UTA's Drop Policy in Undergraduate Catalog.)
May 01	Course End Date
May 08	Grade Released to Students

"As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.–Seiichiro Tanizaki"

General Instruction

- The first introductory module (**Module 0**) last five days. Graded modules from **Module 1** to **Module 7** lasts for **two weeks**.
- Typically in each graded module, you will need to turn in a Pre-Lab report by **Friday of the first week at noon** and a Post-Lab report with Data Sheet by **Friday of the second week at noon**.
- Typically Homework assignments for each module are due by **Friday of the second week at noon**. Although you can work at your own pace, make sure to start earlier and complete them by the due date.
- By **Friday of the second week at noon**, you will take the exam corresponding to the content of the module.
- **Do not wait** until the last minute to complete homework or an experiment. If you experience network problems or if your computer crashes, it could cause you to miss the deadline. **Extensions to due dates will not be allowed when you could not complete your homework because you waited until the last minute.** For example, personal emergencies on the due date do not excuse you from completing assignments.

Module 0: Week 1

Instruction

This module contains materials devoted to help you become familiar with some of the features of Blackboard that have important impact on this course. You need to accomplish the following short tasks, before you attempt to submit academic work to be graded. **It is mandatory that you pass all of these tasks by the end of the first week.** You are allowed (and in fact encouraged) to move immediately into the academic modules as soon as you have completed these tasks. Do not wait until Week 2 to begin Module 1.

Reading Assignments

Read the syllabus and take **the Syllabus Quiz**. Pass the Syllabus Quiz by Friday of Week 1 at noon (PASS/FAIL: You must PASS to continue the course. You can repeat the Syllabus Quiz until you pass it.)

Homework Assignments

Introduction to MasteringChemistry due: Friday of Week 1 at noon. (Graded and Required)

Experiments

Complete **the mandatory online lab safety training**

UTA-000 Getting Started

Pre-Lab Problems due: Friday of Week 1 at noon (PASS/FAIL: You must PASS to continue the course.)

Data Sheet and Post-Lab Report due: Friday of Week 1 at noon (PASS/FAIL: You must PASS to continue the course.)

Exam

Exam 0: Friday of Week 1 at noon (PASS/FAIL: You must PASS to continue the course. You can repeat Exam 0 until you pass it.)

Module 1: Week 2 and Week 3

Instruction

In this module, you will study the contents of Chapter 1 and Chapter 2

Reading Assignments

Chapter 1 “Chemistry and Measurements” and Chapter 2 “Matter and Energy”

Homework Assignments

Chapter 1 and Chapter 2 due: Friday of Week 3 at noon

Experiments

UTA-100 Measurements

Pre-Lab Problems due: Friday of Week 2 at noon

Data Sheet and Post-Lab Report due: Friday of Week 3 at noon

Exam

Exam 1: Friday of Week 3 at noon

Module 2: Week 4 and Week 5

Instruction

In this module, you will study the contents of Chapter 3 and Chapter 4

Reading Assignments

Chapter 3 “Atoms and Elements”

Chapter 4 “Compounds and Their Bonds”

Homework Assignments

Chapter 3 and Chapter 4 due: Friday of Week 5 at noon

Experiments

UTA-200 Chromatography of Food Dyes

Pre-Lab Problems due: Friday of Week 4 at noon

Data Sheet and Post-Lab Report due: Friday of Week 5 at noon

Exam

Exam 2: Friday of Week 5 at noon

Module 3: Week 6 and Week 7

Instruction

In this module, you will study the contents of Chapter 5 and Chapter 7

Reading Assignments

Chapter 5 “Chemical Quantities and Reactions”
Chapter 7 “Solutions”

Homework Assignments

Chapter 5 and Chapter 7 due: Friday of Week 7 at noon

Experiments

UTA-300 Chemical Reactions
Pre-Lab Problems due: Friday of Week 6 at noon
Data Sheet and Post-Lab Report due: Friday of Week 7 at noon

Exam

Exam 3: Friday of Week 7 at noon

Module 4: Week 8 and Week 9

Instruction

In this module, you will study the contents of Chapter 8.

Reading Assignments

Chapter 8 “Acids and Bases”

Homework Assignments

Chapter 8 due: Friday of Week 9 at noon

Experiments

UTA-400 Acids and Bases
Pre-Lab Problems due: Friday of Week 8 at noon
Data Sheet and Post-Lab Report due: Friday of Week 9 at noon

Exam

Exam 4: Friday of Week 9 at noon

Module 5: Week 10 and Week 11

Instruction

In this module, you will study the contents of Chapter 10 and Chapter 11.

Reading Assignments

Chapter 10 “Introduction to Organic Chemistry: Alkanes”
Chapter 11 "Unsaturated Hydrocarbons"

Homework Assignments

Chapter 10 and Chapter 11 due: Friday of Week 11 at noon

Experiments

UTA-500 Hydrocarbons
Pre-Lab Problems due: Friday of Week 10 at noon
Data Sheet and Post-Lab Report due: Friday of Week 11 at noon

Exam

Exam 5: Friday of Week 11 at noon

Module 6: Week 12 and Week 13

Instruction

In this module, you will study the contents of Chapter 12 and Chapter 14.

Reading Assignments

Chapter 12 “Organic Compounds That Contain Oxygen and Sulfur”
Chapter 14 “Carboxylic Acids, Esters, Amines, and Amides”

Homework Assignments

Chapter 12 and Chapter 14 due: Friday of Week 13 at noon

Experiments

UTA-600 Colligative Properties
Pre-Lab Problems due: Friday of Week 12 at noon
Data Sheet and Post-Lab Report due: Friday of Week 13 at noon

Exam

Exam 6: Friday of Week 13 at noon

Module 7: Week 14 and Week 15

Instruction

In this module, you will study the contents of Chapter 13, Chapter 15, and Chapter 16.

Reading Assignments

Chapter 13 “Carbohydrates”
Chapter 15 “Lipids”
Chapter 16 “Amino Acids, Proteins, and Enzymes”

Homework Assignments

Chapter 13, Chapter 15 and Chapter 16 due: Friday of Week 15 at noon

Experiments

UTA-700 Carbohydrate
Pre-Lab Problems due: Friday of Week 14 at noon
Data Sheet and Post-Lab Report due: Friday of Week 15 at noon

Exam

Exam 7: Friday of Week 15 at noon