	Course	BIOL/CHEM 3361 Biochemistry I
	Professor	Mehmet Candas
	Term	Summer 2016
	Meetings	Lecture (0U2) T R 10:00am-12:15pm GR 3.420 Workshop (0U1) T 3:00pm - 4:15pm FO 3.616 Workshop (0U2) R 3:00pm - 4:15pm FO 3.616

Professor's Contact Information

Office Phone	972-883-6338
Office Location	FN 3.206
Email Address	candas@utdallas.edu
Office Hours	M W 2:00 pm - 3:00 p.m.
Other Information	Best way to reach Dr. Candas is via email communication. If you need to have a meeting, please schedule via e-mail.

Teaching Assistants	Nidhish Lokesh (nxl150130@utdallas.edu) Karan Jiva (ktj140030@utdallas.edu) Kalainayakan Saradapreeta Alexandra Lasley Parker McDill

General Course Information

Pre-requisites	CHEM 2323 and 2325 (or equivalent)
Co-requisites	Concurrent registration in BIOL 3161 - Biochemistry Workshop I (Sections OU1 and OU2) is required for both BIOL and CHEM 3361 students, but not BIOL 6352 students.
Course Description	Structures and chemical properties of amino acids; protein purification and characterization; protein structure and thermodynamics of polypeptide chain folding; catalytic mechanisms, kinetics and regulation of enzymes; energetics of biochemical reactions; metabolism; roles of coenzymes and prosthetic groups in redox reactions; pathways for carbohydrate oxidation; glycogen metabolism; glucose synthesis; electron transport and oxidative phosphorylation.

Course Objective	This undergraduate core course is the first of a two-course sequence that provides students with a working knowledge of the macromolecules and fundamental metabolic pathways of prokaryotes and eukaryotes, with emphasis on human systems. Biochemistry I is devoted to mastering 1) the structure and function of amino acids and proteins and 2) central metabolism and energy conservation, as a means of understanding biological processes in general and developing problem-solving skills in biochemistry. Fundamental thermodynamic principles that drive life processes and the regulatory mechanisms that fine-tune them are stressed in order to provide the rationale and framework for students to master the

	necessary molecular structure and pathways. Relevance to human physiology, medicine, and genetics is used to stimulate students to begin the integration of biochemistry with other disciplines.
Learning Outcomes	Students will be able to: • Explain the basic thermodynamics governing biochemical reactions and use this information to solve problems involving biochemical thermodynamics. • Recognize the molecular structures and describe the chemical properties of proteins, their amino acid residues, and carbohydrates; and solve related pH problems. • Explain enzyme catalysis and regulation, and apply enzyme kinetics in problem solving. • Describe the central pathways for the catabolism of glucose and complex carbohydrates, and gluconeogenesis • Understand the organization of electron transport chains, and the different mechanisms for ATP synthesis

Required Textbook	**Biochemistry 6th Edition (Reginald H. Garrett and Charles M. Grisham)** Earlier editions are acceptable for most of the material. There are various options for obtaining the textbook; so, evaluate your options including hardbound, loose-leaf print and e-text formats from the campus bookstore (http://www.bkstr.com/texasatdallasstore/shop/textbooks-and-course-materials) or directly from the publisher (http://www.cengage.com/c/biochemistry-6e-garrett#compare-options), as well as online sellers and off-campus stores.
Optional Online Component	If you have an access code for OWL/Cengage, an **optional, non-graded** online component for reviewing the learning modules and self-assessment questions that accompany the chapters from Biochemistry by Garrett and Grisham textbook is available. Registration instructions and specific enrollment link can be found at: https://login.cengagebrain.com/course/E-TWQN2J44EHYCA
eLearning website	From the UTD homepage, logon to the eLearning website for BIOL/CHEM 3361 class notes, homework assignments, announcements, your grades, etc.

BIOL/CHEM 3361 BIOCHEMISTRY I - LECTURE CLASS
Topics and Tentative Schedule - Summer 2017

Dates	Days	Topics	Chapters
Tue	5/30	Introduction, Weak Interactions Water and Acid/Base Properties	Chap 1 Chap 2
Thu	6/1	Thermodynamics of Biological Systems	Chap 3
Tue	6/6	Thermodynamics of Biological Systems cont.	Chap 3
Thu	6/8	Amino Acids	Chap 4
Tue	6/13	Protein Structure/Function Overview	Chaps 4.7, 5.1, 5.2, 5.7, 5.8
Thu	6/15	Protein Purification and Characterization	Chaps 4.7, 5.1, 5.2, 5.7, 5.8
Tue	6/20	**EXAM #1** **Homework 1 is due at the exam.**	Chaps 1- 4 & 5.1, 5.2, 5.7, 5.8
Thu	6/22	Enzyme Kinetics; Inhibition Kinetics; Irreversible Inhibition; Bisubstrate Kinetics	Chap 13
Tue	6/27	Enzyme Mechanisms	Chap 14
Thu	6/29	Proteins: Primary Structure and Sequencing Protein Secondary, Tertiary and Quaternary Structure	Chap 4.7 & 5.3-5.6 Chap 6
Tue	7/4	4^{th} of July – No class	
Thu	7/6	Protein Secondary, Tertiary and Quaternary Structure cont'd; Protein Folding	Chap 6 Chap 31.1
Tue	7/11	**EXAM #2** **Homework 2 is due at the exam.**	Chaps 4.7, 5.3-5.6, 6, 13, 14; Chap 31.1
Thu	7/13	Enzyme Regulation; Mechanisms of Allostery	Chap 15
Tue	7/18	Overview of Metabolism: Catabolism and Anabolism Carbohydrates	Chap 17 Chap 7
Thu	7/20	Glycolysis: First Phase Glycolysis: Second Phase	Chap 18
Tue	7/25	Gluconeogenesis	Chap 22
Thu	7/27	Glycogen Metabolism Pentose Phosphate Pathway	Chap 22
Tue	8/21	**EXAM #3** **Homework 3 is due at the exam.**	Chaps 7, 15, 17,18, 22
Thu	8/3	The Tricarboxylic Acid Cycle Glyoxylate Shunt	Chap 19
Tue	8/8	Electron Transport ATP synthesis	Chap 20
Thu	8/10	**EXAM #4 (LAST EXAM)** **Homework 4 is due at the exam.**	Chaps 19, 20, 22

The descriptions and timelines indicated in this syllabus are subject to change at the discretion of the Professor.

Course Policies

Grading Criteria

Assessment is based on grades from 4 lecture class exams and 4 homework assignments. Exams may consist of multiple choice questions, matching, true/false, and labeling, fill in the blank and/or short answer questions. Homework assignments are due on the exam days and collected during the exam. Completion of all homework assignments are required.

The percentages for the lecture exam and homework assignments are:

- 80% lecture class exams
- 20% homework assignments

Exam scores will be posted on eLearning. All exam grades are final upon 1 week of posting. If you do miss an exam, the score will be recorded as zero, "0". You must contact within 24 hours of the missed lecture exam to request a make-up exam, which can only be scheduled when excuse is documented. There is no retake for any exam. If a homework assignment is turned in late, 10% will be deducted for each late day. Assignments that are late 3 days will not be accepted and will be given zero, "0".

Final grades are distributed as following:

Letter Grade	Score Range
A+	95-100
A	88-94
A-	85-87
B+	82-84
B	78-81
B-	75-77
C+	72-74
C	68-71
C-	65-67
D+	62-64
D	58-61
D-	55-57
F	<55

If your overall average numerical score is fractional, it will be rounded off to the nearest integer value, i.e., 0.5 - 0.9 will be rounded up to the next highest whole number. In other words, 84.5 would be rounded to 85 and the student would receive an A- grade; but 84.4 would be rounded to 84 and the student would receive a B+ grade.

You will receive the same letter grade in both BIOL/CHEM 3361 (lecture) and BIOL 3161 (workshop).

Lecture Class and Workshop Attendance	Regular attendance to lecture and workshop classes and participation in class activities are required and part of grading, and reported to the registrar as mandated by the University. Arriving at the classroom punctually and regular attendance to the class meetings is part of your responsibility as student. Lateness or leaving the class early is not tolerated as it is disruptive to orderly and efficient conduct of the class. Do not disturb your peers or instructor during lectures. Distracting yourself and others during lectures is disruptive to the course conduct. Students are expected and required to adhere to the University of Texas at Dallas student conduct and discipline policies (policy.utdallas.edu/utdsp5003) established in accordance with The University of Texas System. Each student is charged with notice and knowledge of and compliance with the contents and provisions thereof. Students who establish a trend of habitual lateness/chronic tardiness or leaving the class early will be reported to the Dean of Students Office.
Use of Electronic Devices	Use of any type electronic devices, including laptop computers, cell phones, PDAs, headphones, pagers are distractive and disruptive to teaching and learning process, and they are not permitted during lectures. Such devices must be turned off and put away during lectures, workshops and exams. If you want to use laptop computer for taking notes, you must inform the instructor and obtain permission. Laptop computers may be allowed at the discretion of the Professor, and they can only be used for following the lecture material or taking lecture notes during class. Students who engage in use of laptop computers and/or cell phones during the lectures for activities unrelated to the learning experience, including web-surfing, social media or viewing distractive files will be reported to the Dean of Students Office for academic disciplinary action. Students are expected and required to adhere to the University of Texas at Dallas student conduct and discipline policies (policy.utdallas.edu/utdsp5003) established in accordance with The University of Texas System. Each student is charged with notice and knowledge of and compliance with the contents and provisions thereof.
Make up Exams	Make-up exams will be given ONLY in case of documented excuses or emergencies such as in the event of illness (doctor's note with clinic contact info required), official university business, or professional school interviews. Most "return to work" slips do not indicate that there was a sickness or emergency and they do not specify the date and reason for visit and diagnosis by a doctor or clinic. Thus you need to provide an official documentation indicating specifically the date and reason of admission to a clinic, or a documentation indicating attendance to a school interview, or

	demonstrating an extraordinary or emergency situation. Since religious holidays are known in advance, you must inform about them in the beginning of the semester. Make-up exams may be different from regular exams and may include a verbal component and/or drawing of structures. The highest grade possible on a make-up exam is the average of your other exams. Students should not be able to benefit from the extra time that other students do not have. Students can maintain their average but not improve upon it.
Student Conduct and Discipline	The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, *A to Z Guide*, which is provided to all registered students each academic year. The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. The rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391). A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.
Academic Integrity	The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work. Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings. Cheating is a serious offense to the University's policy on intellectual dishonesty. I have and will continue to confront and punish scholastic

	dishonesty to the full extent of University Regulations. Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective. For further information, review the following website: **http://www.utdallas.edu/judicialaffairs/**
Email Use	The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.
Withdrawal from Class	The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.
Incomplete Grades	As per university policy, incomplete grades will be granted only for work unavoidably missed at the end of semester and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of **F**.
Accessibility Services	The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m. The contact information for the Office of Disability Services is: The University of Texas at Dallas, SU 22 PO Box 830688 Richardson, Texas 75083-0688

	(972) 883-2098 (voice or TTY) Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance. It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.
Religious Holy Days	The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated. The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment. If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

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