

CHEM 4300 - General Biochemistry I
4 Credit Hours

Course Description:

This general education college-level upper division course introduces biochemistry. It covers the fundamentals of biochemistry such as water and buffers, amino acids, proteins and protein structure, enzymes and enzyme kinetics, carbohydrates, lipids and membranes. This course also includes an introduction to metabolism.

Course Outcomes:

Our goals are primarily twofold:

1. To gain considerable factual knowledge about the terminology and language of biochemistry. You will gain a practical understanding of the molecular basis of life.
2. To learn to interpret and reason common theories and practices in biochemistry, giving you a greater understanding of the practices of pharmaceutical companies, chemical industry and the molecular basis of disease.

By the end of the semester the student should be able to:

- Understand the building blocks of life
- Understand the molecular basis of disease
- Understand the importance biochemical research
- Understand the responsibilities and roles of biochemists in society
- Disseminate what they have learned to students and the general public enhancing their position as a member of society

Prerequisites and Corequisites:

CHEM 1110, CHEM 1120 and CHEM 3010 (first semester of organic chemistry) are required.

Course Topics:

The course is divided into ten (10) basic sequential units. Each subsequent unit is dependent

on the previous units. These are:

1. Water
2. Amino Acids
3. Protein Structure and Function
4. Properties of Enzymes
5. Vitamins and Health
6. Carbohydrates
7. Lipids and Membranes
8. Carbohydrate Metabolism
9. Fat Metabolism
10. Protein Metabolism

Specific Course Requirements:

To succeed in this course the student must be curious, self-motivated, and well-organized. The student must be computer-literate having the abilities to access and browse the web, to use word processing software, and to send and receive attachments via email. The ability to use spreadsheet software to create simple line graphs is a plus.

Required Textbooks:

Please visit the [Virtual Bookstore](#) to obtain textbook information for this course. Move your cursor over the "Books" link in the navigation bar and select "Textbooks & Course Materials." Select your Program, Term, Department, and Course; then select "Submit."

Hardware and Software Requirements:

Minimum hardware requirements can be found [here](#).

Minimum software requirements can be found [here](#).

Common applications you might need:

To read a PDF file download the latest version of [Adobe Reader here](#)

Don't have Microsoft Word? Explore an alternative [OpenOffice here](#)

Accessing a PowerPoint file? Download the [PowerPoint Viewer here](#)

Web Resources:

Purdue [OWL Online Writing Lab](#) (for APA, MLA, or Chicago style)

The Writing Center [Online Writer's Handbook](#)

Student Resources:

- Technical support information can be found on the [TN eCampus Help Desk](#) page.
- Smarthinking virtual tutoring is available **FREE** of charge. to access Smarthinking, visit the course homepage and select Smarthinking under Course Resources. You also view [sample sessions](#) to see what Smarthinking offers and how it works.
- Information on other student issues or concerns can be located on the [TN eCampus Student Resources](#) page.

Instructor Information:

Please see "Instructor Information" in the Getting Started Module for instructor contact information, virtual office hours, and other communication information. You can expect to receive a response from the instructor within 24-48 hours unless notified of extenuating circumstances.

Testing Procedures:

Unit tests are required at the conclusion of each unit (module.) They may be taken one time only during a specified time period. Results, with feedback, will be available immediately to both student and instructor. Eight of these will be counted toward the final grade. One (1) proctored final exam completes the testing process. The student is responsible for selecting and obtaining an acceptable proctor.

Grading Procedures:

A student's grade is determined based on his/her numerical average achieved through completion of: homework and class participation (discussion forum usage), unit tests, internet research project, and final examination. Levels of achievement and weighting for each of these elements is outlined below.

Item	Weight (%)
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Homework and Class Participation	25
Internet Project	25
Unit Tests (8)	25
Final Exam	25
Total	100

Grading Scale:

90-100	A
80-89	B
70-79	C
60-69	D
Below 60	F

Grades are assigned in conformity with a standard college grading scale listed above. The numerical grade is computed from a weighted average of the following items with the indicated weights. In cases where a student has demonstrated a significant level of improvement, the weight of the final exam may be increased to reflect the then-present level of mastery.

Assignments and Projects:

The student should plan on completing one module each week in the order shown on the Module link in WebCT. Assignments for this course will consist of a homework set for each module, ten module on-line tests and one final exam. The time at which each homework assignment and module test can be taken is shown in the course calendar on WebCT. Time windows of availability will be found by referring to the homework instrument or to the WebCT "Tests and Quizzes" link.

Class Participation:

Students must participate in all interactive aspects of the course. Students must use discussion threads and e-mail to communicate with the instructor and other students.

Students are expected to communicate with the instructor as a learning resource, students

must check the course bulletin board frequently for announcements, and students must actively participate in threaded discussion events.

Late Policy:

Check your Course Calendar for the dues dates for assignments and dates for all examinations. Specific policies will be explained by your instructor.

Course Ground Rules:

The following two statements (1., 2.) were derived from the TBR System-wide Student Rules document, released January 2012:

RULES OF THE TENNESSEE BOARD OF REGENTS STATE UNIVERSITY AND
COMMUNITY COLLEGE SYSTEM OF TENNESSEE SYSTEMWIDE STUDENT RULES
CHAPTER 0240-02-03 STUDENT CONDUCT AND DISCIPLINARY SANCTIONS

[Read the document in its entirety here.](#)

1. Standards of Conduct:

- Students are required to adhere to the same professional, legal and ethical standards of conduct online as on campus. In addition, students should conform to generally accepted standards of "netiquette" while sending e-mail, posting comments to the discussion board, and while participating in other means of communicating online. Specifically, students should refrain from inappropriate and/or offensive language, comments and actions.

2. [Review the TN eCampus Academic Integrity/Academic Honesty Policy:](#)

- In their academic activities, students are expected to maintain high standards of honesty and integrity. Academic dishonesty is prohibited.

Such conduct includes, but is not limited to:

- an attempt by one or more students to use unauthorized information in the taking of an exam
- to submit as one's own work, themes, reports, drawings, laboratory notes, computer programs, or other products prepared by another person,
- or to knowingly assist another student in obtaining or using unauthorized materials.

Plagiarism, cheating, and other forms of academic dishonesty are prohibited.

Students guilty of academic misconduct, either directly or indirectly through participation or assistance, are subject to disciplinary action through the regular procedures of the student's home institution. Refer to the student handbook provided by your home institution to review the student conduct policy.

In addition to other possible disciplinary sanctions that may be imposed, the instructor has the authority to assign an "F" or zero for an activity or to assign an "F" for the course.

Other Course Rules:

Students are expected to:

- Participate in all aspects of the course
- Communicate with other students
- Learn how to navigate in Brightspace
- Keep abreast of course announcements
- Use the assigned course management (Brightspace) email address rather than a personal email address
- Address technical problems immediately:
 - [Contact Technical Support](#)
 - [View Term Calendar here](#)
- Observe course netiquette at all times.

Guidelines for Communications:

Email:

- Always include a subject line.
- Remember without facial expressions some comments may be taken the wrong way. Be careful in wording your emails. Use of emoticons might be helpful in some cases.
- Use standard fonts.
- Do not send large attachments without permission.
- Special formatting such as centering, audio messages, tables, html, etc. should be avoided unless necessary to complete an assignment or other communication.
- Respect the privacy of other class members

Discussions:

- Review the discussion threads thoroughly before entering the discussion. Be a lurker then a discussant.

- Try to maintain threads by using the "Reply" button rather starting a new topic.
- Do not make insulting or inflammatory statements to other members of the discussion group. Be respectful of other's ideas.
- Be patient and read the comments of other group members thoroughly before entering your remarks.
- Be cooperative with group leaders in completing assigned tasks.
- Be positive and constructive in group discussions.
- Respond in a thoughtful and timely manner.

Library:

The [Tennessee Virtual Library](#) is available to all students enrolled in TN eCampus programs and courses. Links to library materials (such as electronic journals, databases, interlibrary loans, digital reserves, dictionaries, encyclopedias, maps, and librarian support) and Internet resources needed by learners to complete online assignments and as background reading will be included within the course modules. To access the Virtual Library, go to the course homepage and select the ***Virtual Library*** link under Course Resources.

Students with Disabilities:

Qualified students with disabilities will be provided reasonable and necessary academic accommodations if determined eligible by the appropriate disability services staff at their home institution. Prior to granting disability accommodations in this course, the instructor must receive written verification of a student's eligibility for specific accommodations from the disability services staff at the home institution. It is the student's responsibility to initiate contact with their home institution's disability services staff and to follow the established procedures for having the accommodation notice sent to the instructor.

Syllabus Changes:

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the course bulletin board.

Disclaimer

The information contained in this syllabus is for general information purposes only. While we endeavor to keep this information up-to-date and accurate, there may be some discrepancies between this syllabus and the one found in your online course. The syllabus of record is the one found in your online course. Please make sure you read the syllabus in your course at the beginning of the semester. Questions regarding course content should be directed to your instructor.