

Toxicology (CHE 314)

Spring 2009

Marianne Staretz

Office: Oberkotter 7

Phone: ext. 3608 Email: Mestaret@cedarcrest.edu

Office hours: Regularly scheduled office hours are posted on my office door. I am happy to help at other times, if my schedule permits. Feel free to stop by whenever I am in my office. To be sure of my availability for assistance, please schedule an appointment.

Required textbook: The textbook required for this course is: Timbrell, John. **Principles of Biochemical Toxicology 4th edition**, Informa Health Care, 2008.

Course Description: Chemistry 314, Toxicology, will present an overview of toxicology principles, including absorption, distribution, metabolism and elimination of toxicants as well as the effects of toxicants on biological systems and their mechanism of action. Toxic effects of organic and inorganic materials will be presented. In addition, methods of measuring toxicity will be discussed.

Course Objectives: Students will be introduced to the principles and methods associated with the field of toxicology. This will enhance their science education in a way that may prove useful in future scientific endeavors. In addition, through problems and exams, students will practice applying their newly acquired toxicological knowledge. This will contribute to the development of scientific and quantitative reasoning skills. A required poster presentation will contribute to the development of students' oral and written communication skills.

Course Outcomes: After completing this course, the students should:

- a) Understand the definition and scope of toxicology and have a basic vocabulary of toxicology that is needed to talk intelligently about toxic compounds and their mode of action.
- b) Understand the absorption, distribution and elimination of toxicants.
- c) Be able to identify principle metabolic reactions involved in the metabolism of toxicants.
- d) Know the chemical and biological factors affecting metabolism.
- e) Be aware of the biochemical and biological modes of activity of toxicants.
- f) Understand the effects of toxicants on biological systems.
- g) Discuss various organic and inorganic chemicals and their toxic effects.
- h) Know how toxicity is measured.
- i) Be aware of general treatments for poisoning.

Grading policy: The grade for this course will be determined as follows:

- a) Three one hour in class examinations will be given and each will be worth 100 points.
- b) Health and Wellness conference presentation – April 22, 2008(100 points)
- c) A final comprehensive exam will be given worth 200 points.

The in class examinations will be closed book, closed notes and will consist of any or all of the following: multiple choice, matching, definitions, short answer, short discussion, and longer essay questions.

At the end of the semester, there is a possible total of 600 points. To compute the lecture grade, add points from all exams/paper, divide by 600 and multiply by 100. The grade will be some percentage

between 0 and 100%. Letter grades will be assigned based on the following scale:

93-100%	A	80-82.9%	B-	67-69.9%	D+
90-92.9%	A-	77-79.9%	C+	60-66.9%	D
87-89.9%	B+	73-76.9%	C	Below 60%	F
83-86.9%	B	70-72.9%	C-		

Lecture Policy: Students are expected to attend all lectures. Lectures are a necessary supplement to the textbook. In the event of a missed lecture, the student is responsible for the lecture material, any assignments which were given, announcements or any other information that was provided in class.

Attendance at Exams: Students are required to attend class on exam days. Make-up exams will not be given without a valid excuse. Validity of the excuse will be up to the discretion of the instructor. Be forewarned; you will need to have a very good reason for missing an exam! I am not trying to be harsh. I am only trying to treat all students fairly. If the student is aware of some responsibility which will interfere with an exam date, it must be discussed with the instructor in advance. If an exam is missed without advance notice due to serious illness or emergency, a valid written excuse will be required from the doctor/school nurse in the case of illness or from the Dean of Students' Office in the case of family emergency. If the student does not have a valid excuse for missing an exam, the student will receive a zero for the missed exam. Please make note that make up exams will be harder than the original exam. Your obligations for this course include attendance at the final exam, on the day and time scheduled by the Registrar's Office. You should not make travel arrangements until the final exam schedule is published; if you must make plans early, you should schedule your travel after the last final exam day

Honor Philosophy: The Cedar Crest College Honor Philosophy states that students should uphold community standards for academic and social behavior in order to preserve a learning environment dedicated to personal and academic excellence. Upholding community standards is a matter of personal integrity and honor. Individuals who accept the honor or membership in the Cedar Crest College community of scholars pledge to accept responsibility for their actions in all academic and social situations and for the effect their actions may have on other members of the College community.

Community Standards for Academic Conduct: Academic integrity and ethics remain steadfast, withstanding technological change. Cedar Crest College academic standards therefore apply to all academic work, including, but not limited to, handwritten or computer-generated documents, video or audio recordings, and telecommunications.

As a student at Cedar Crest College, each student shall:

- Only submit work which is his/her own.
- Adhere to the rules of acknowledging outside sources, as defined by the instructor, never plagiarizing or misrepresenting intellectual property.
- Neither seek nor receive aid from another student, converse with one another when inappropriate, nor use materials not authorized by the instructor.
- Follow the instructions of the professor in any academic situation or environment, including taking of examinations, laboratory procedures, the preparation of papers, properly and respectfully using College facilities and resources, including library and computing resources to ensure that these resources may be effectively shared by all members of the College community.
- Abide by the Cedar Crest Computer Use Policy.
- If a student perceives a violation of the Academic Standards, he/she will go to their instructor.

- If you are unable to resolve the problem with the instructor, you should go to the chair of the department. If you need further assistance after consultation with the instructor and the chair, you should see the Provost.

Classroom Protocol: Appropriate classroom behavior is defined and guided by complete protection for the rights of all students and faculty to a courteous, respectful classroom environment. That environment is free from distractions such as late arrivals, early departures, inappropriate conversations and any other behaviors that might disrupt instruction and/or compromise students' access to the Cedar Crest College education. Inappropriate classroom protocol may lead to removal from the classroom and a lowering of the lecture grade. If continuous, it can lead to forced withdrawal from the class.

Disabilities: Students with documented disabilities who may need academic accommodations should discuss these needs with their professor during the first two weeks of class. Students with disabilities who wish to request accommodations should contact the Advising Center.

TENTATIVE SYLLABUS

DATE	TOPIC	CHAPTER
Jan 19-21	Introduction to the course/History Scope of Toxicology	Chapter 1
Jan 23-28	Dose-Response Relationships and Toxicity Testing	Chapter 2
Jan 23-28	Factors affecting toxic responses: disposition a) Absorption considerations including mechanism of absorption and sites of absorption b) Distribution c) Elimination	Chapter 3
Jan 30-Feb 11	Factors affecting toxic response: metabolism a) Phase I metabolism b) Phase II metabolism	Chapter 4
Feb. 13	Factors affecting metabolism and disposition a) Chemical factors b) Biological factors	Chapter 5
Feb. 16	Exam #1- Chapters 1-4	
Feb. 18-25	Factors affecting metabolism and disposition-cont.	Chapter 5
Feb 20-Mar 2	Toxic Responses to Foreign Compounds a) Direct toxic action: tissue lesions	Chapter 6 (pg 175-195)
Mar 4-20	b) Pharmacological, physiological, and biochemical effects	Chapter 6 (pg 195-215)

March 23	c) Teratogenesis	Chapter 6 (pg 215-227)
March 25	EXAM #2- Chapters 5 and 6 (pg 175-215)	
Mar 27	c) Teratogenesis, cont.	Chapter 6
Mar 30-Apr 1	d) Immunotoxicity	Chapter 6 (pg 227-233)
April 3-8	e) Genetic toxicity	Chapter 6
April 15-20	f) Carcinogenesis	Chapter 6
April 22-27	Biochemical Mechanisms of Toxicity: specific examples	Chapter 7
April 29	Exam #3	
May 1-5	To be determined	

**FINAL EXAM AS SCHEDULED BY
REGISTRAR**