

Syllabus for BIOL 4370/5370: General Toxicology Spring, 2024

I. General Information:

Instructor:	Amie K. Lund, Ph.D.	Course Number:	BIO 4370/5370
Office:	ENV 310D	Section Number:	001
Office Phone:	940-369-8946	Semester/Year:	Spring, 2024
E-mail:	amie.lund@unt.edu	Building/Room:	LSC – A106
Office Hours:	Tuesday 10:00 – 11:00 a.m. Thursday 12:30 p.m. – 1:30 p.m. or by appointment.	Meeting Time:	Tuesday & Thursday 11:00 a.m. – 12:20 p.m.

II. Course Description:

This course will cover basic concepts of toxicology, including the routes of exposure, disposition, and metabolism of toxic substances, toxicokinetics, target organ toxicity, non-organ directed toxicity, toxic agents, and risk assessment. Students will be exposed to case studies, literature from medical journals, as well as topics that are of current interest through discussion and learning exercises. In addition to formal coursework, students will be expected to participate in problem-based learning exercises (PBLs), the course Packback Community Forum, and a team project entitled "Toxicology on Trial", which will focus on current-event topics and the discussion of key toxicants and their use.

The overall objectives of this course are:

- To be able to identify key toxicological principles
- To know and understand the effects of toxicants on key tissues and organ systems, including the key mechanistic signaling pathways and/or receptors involved
- To have an increased awareness of toxicants in your everyday life
- To be able to evaluate the potential for toxic consequences

III. Textbooks/Materials/Resources:

1. Required Textbook: "Casarett & Doull's Essentials of Toxicology", 3rd Edition by C.D. Klaassen and J.B. Watkins (ISBN-13: 978-0071847087; ISBN-10: 0071847081).
2. We will also use an interactive forum in Packback to discuss real-world toxicology/exposure scenarios, course content, and problem-based learning exercises. Access to Packback is free; assignments will be graded.
3. We will be utilizing iClicker for interactive questions and quizzes (it is mandatory for this course). Please register for the following iClicker course: **SP24 BIOL 4370/5370.001 - Lund**

How to Register on Packback:

An email invitation will be sent to you from help@packback.co inviting you to the course and/or prompting you to finish registration if you have never used the Packback forum. If you don't receive an email (be sure to check your spam), you may register by following the instructions below:

1. Click on the Packback link on the left-hand menu in our Canvas course page.
Note: If you already have an account on Packback you can log in with your credentials.
2. If you are not directly linked to our course Packback forum, then enter our class community's lookup key into the "Looking to join a community you don't see here?" section in Packback at the bottom of the homepage.
3. Community Lookup Key: **491148ba-f130-4111-85c6-57c0a64dbb3e**
4. Follow the instructions on your screen to finish your registration.

How to Get Help from the Packback Team:

If you have any questions or concerns about Packback throughout the semester, please read their FAQ at help.packback.co (Links to an external site.). If you need more help, contact their customer support team directly at help@packback.co.

For a brief introduction to Packback Questions and why we are using it in class, watch this video:
<https://vimeo.com/163888277>

Additionally, research articles, case studies, and handouts pertaining to current class topics may be provided to supplement the text on an "as needed" basis.

IV. Course Requirements:

Attendance: Because the information in this course builds with each successive class meeting, success in this course is heavily influenced by attendance. Thus, students are expected to regularly attend lectures. While I do not take formal attendance, I will utilize polling questions in the lecture to assess participation. Participation points will count toward the final course grade.

Religious Holidays: In accordance with Section 51.911 of the Texas Education Code, UNT will allow a student who is absent from class for the observance of a religious holy day to take an examination or complete an assignment scheduled for that day within a reasonable time. Students are required to file a written request with the dates of the anticipated absence to qualify for an excused absence. A copy of the state rules and procedures regarding holy days and the form for notification of absence from each class under this provision are available from the Registrar's Office.

Final Exam. The final exam schedule for this course is:
Tuesday, May 7th from 10:30 a.m. – 12:30 p.m.

V. Grading:

The following scale will be used to assign final course grades. Letter grades reflect the level of understanding of environmental science principles, applications, and laboratory skills/techniques demonstrated:

For this class grade:	You need this percentage:	Level of understanding of material:
A	90 - 100%	Superior understanding
B	80 – 89%	Above-average understanding
C	70 - 79%	Average understanding
D	60 - 69%	Below average understanding
F	< 60%	Does not demonstrate a fundamental understanding

The course grade will be calculated from an average of four (4) exams, one of which is a comprehensive final exam, quizzes, PBLs, in-class work/participation, and your Toxicology on Trial (or Graduate Student) project. No make-up exams will be given without a university-excused absence. If students miss the exam, a grade of zero (0) will be awarded for that particular examination. Question format may include a combination of short answers, fill-in-the-blank, diagramming/labeling, and/or short essays.

1. Graded written and homework assignments will be introduced during the lecture period throughout the semester, and the due date will be assigned at that time. If you miss a class period when an assignment is given, you are still responsible for completing the assignment by the due date. **Late assignments will not be graded without a University excused absence.**
2. There will be approximately eight (8) scheduled quizzes over content covered in class (as announced) worth 15 pts each. All assessments (quizzes and exams) will be in class via LockDown Browser on our Canvas course page. Question types include multiple choice, T/F, dropdown menu, and/or matching. **Your lowest quiz grade will be dropped; therefore, there will be no make-up offered for quizzes unless it is a university-excused absence.**
3. In-class polls/discussions/exercises will be presented throughout the semester, which will be graded by the instructor and count toward your final grade. If you are absent on a day when an in-class assignment is given, you will receive a “0” for that assignment. No make-ups will be offered for in-class work exercises unless you have a University-excused absence.
4. We will utilize a course forum in Packback for discussion. Participation is mandatory and will be graded as a portion of the course points. Quiz and exam questions may also be generated from Packback forum topics.
5. Toxicology on Trial. Undergraduate students (4370) will be assigned to a group/topic by Dr. Lund. Students will then be tasked with reviewing a specific side of the issue/topic chosen (e.g., pros vs. cons) in a written brief. The groups will present their assigned side of the topic to the class based on evidence from the literature or other reliable sources. You will receive more information for preparing the brief later in the semester. **The brief is DUE Thursday, April 18th, 2024, at 11:00 a.m. Toxicology on Trial presentations/debates will be done in class from April 18th – May 2nd, 2024.** Late projects will not be accepted!!

6. Graduate students (5370) will have an additional oral and written project to satisfy the graduate-level credit they will receive for this course. BIOL 5370 Students will choose a xenobiotic/toxicant and provide a monograph and a 15-20 min presentation on the toxicant. The student will also post an interactive Packback question related to the xenobiotic. Further information, instructions, and due dates will be provided to all graduate-level students. **The monograph is due by Tuesday, April 16th, 2024 at 11:00 a.m. Presentations will also be completed during class on April 16th, 2024.** Late projects will not be accepted!

Grading (point) distribution for the course grade is as follows (**estimate only**):

	Points	Total Point	Percentage of Course Grade
Exams (4)	40 pts each	160 points total	Undergrad: ~50% <i>Grad: ~48%</i>
Quizzes (7)* *Lowest quiz grade will be dropped	10 pts each	60 pts	Undergrad: ~18% <i>Grad: ~18%</i>
In class exercises / Packback assignments / PBLs, etc.	varied	~ 70 points total	Undergrad: 22% <i>Grad: 21%</i>
Toxicology on Trial student project	30 pts	30 points	Undergrad: ~10%
5370 Graduate-level project	45 pts	45 points total	<i>Grad: ~13%</i>
	TOTAL	Undergrad: 325 possible points <i>Grad: 335 possible points</i>	

Other Requirements:

- Students are responsible for all materials covered in class and in the reading assignments. Some material that is not in the textbook, which is provided in class during the lecture, may appear on examinations.
- **Students are expected to enroll and participate in our course Packback forum. There is no cost for enrollment. You can enroll using the following community look-up key: 491148ba-f130-4111-85c6-57c0a64dbb3e**
- Writing responses and/or questions on Packback will:
 - Help you develop writing skills necessary for any career path
 - Reinforce the imperative skill of justifying thoughts and claims with credible evidence- and then citing the evidence!
 - Enhance critical thinking skills.
 - Deepen your understanding of the course content by gaining diverse insights and perspectives from your peers.
- Students are expected to do their readings before class.
- Students may be expected to seek out information on websites or other books to further their understanding of the material covered in class.
- Students themselves are responsible for seeking information on any assignments that may have been given out during their absence. This can be accomplished by checking your

syllabus for the topics/book chapters that will be covered during that class session. Please note make-up policies on quizzes and exams listed above.

- Students will need access to a computer for assignments, quizzes, and exams. Computers are available to UNT students on all campuses.

VI. EXPECTATIONS

Exam Policies:

- **Quizzes and exams will be given during our normal class times and will be accessed through our Canvas course page using LockDown Browser.**
- All quizzes and exams MUST be submitted through LockDown browser prior to leave the classroom; otherwise, the quiz will receive a grade of “0”.
- Any sharing of the quiz or exam passcode with students outside of the classroom is considered cheating, and in addition to all parties receiving a “0”, they will be turned in to the Dean of Students for reprimand.
- No books, notes, phones, or other devices (including headphones) are allowed to be used during quizzes or exams.
- No student may begin an exam after the due date/time has passed.
- Quiz and exam questions cannot be copied or photographed.
- Any behavior deemed to be cheating or academic misconduct during a quiz or an exam can result in the student receiving a zero and/or being reported to the Dean of Students.

Any and all grade questions or disputes must be brought to the attention of the instructor within **one week** of receiving the grade. After one week, grades will not be changed.

Academic Misconduct:

Students are expected to abide by the Student Code of Conduct as it appears in the UNT catalog. Academic misconduct will not be tolerated. **No cheating will be tolerated.** Anyone cheating (all forms) or exhibiting behaviors consistent with cheating, including, but not limited to, assisting other students with cheating: talking during a testing event, accepting credit for another’s work, etc., will receive as a minimum punishment a grade of zero for the graded item. More severe punishment will be taken depending upon the circumstances. Any and all incidents of academic dishonesty will be reported to the appropriate authorities.

Release of Grades:

The Family Educational Rights and Privacy Act (FERPA) (1974) does not permit faculty or staff to report grades by phone or email. All grades will be posted on Canvas so that students can see exactly where they stand in the course at any given time throughout the semester.

VII. Other Information:

POLICY ON INCOMPLETE GRADES:

An incomplete (I) grade is a non-punitive grade, given only during the **last one-fourth of a semester** and only if a student is (1) passing the course; (2) has a **justifiable reason** why the class cannot be completed on schedule; and (3) arranges with the instructor to finish the course at a later date by completing specific requirements that the instructor must list on the grade sheet turned in at the end of the semester. **All work**

must be completed within the time specified by the instructor (not to exceed one year after taking the course).

IMPORTANT WITHDRAWAL DATES:

January 29, 2024:	Census – Official Enrollment Determined; last day to drop a course section to no longer appear on the official transcript:
January 30, 2024	Beginning this date a student may drop with a grade of “W” ; the course appears on the transcript with a grade of W and tuition fees remain.
February 23, 2024	Last day to change to pass/no pass grade option (undergraduates)
April 5, 2024	Last day for a student to drop a course or all courses with a grade of “W”
April 6, 2024:	First day to request a grade of incomplete (I); please see Dr. Lund ASAP
May 2, 2024	Last day of regular classes
May 3, 2024	Reading Day, No classes
May 4 – 10, 2024	Final exams

A list of the above dates, as well as other important date/deadline information can be found on the UNT Registrar’s webpage at: <https://registrar.unt.edu/registration/spring-academic-calendar.html>

RELEASE OF GRADES

The Family Educational Rights and Privacy Act (FERPA) (1974), does not permit faculty or staff to report grades by phone or email.

SPOT EVALUATIONS

SPOT evaluations for the course will be available through a direct link provided in an email and posted via announcements on Canvas, typically the last 3 weeks of the semester. I welcome your comments and constructive criticism on course content, teaching methods, etc. Please let me know what worked for you and what didn’t – and the reasons why. Your opinions are valuable to me and assist me in adapting the course for future semesters.

DISABILITY ACCOMMODATIONS

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the Office of Disability Accommodation website at <http://www.unt.edu/oda>. You may also contact them by phone at 940.565.4323.

Course Schedule for BIOL 4370/5370, Section 001 spring, 2024:

WEEK	DATE	TOPICS	MATERIALS (Chapters)
1	1/16	Course Intro / Intro to Toxicology	2
	1/18	Mechanisms of Toxicology	3
2	1/23	Mechanisms of Toxicology Absorption, Distribution, Elimination of Toxicants	3 5
	1/25	Absorption, Distribution, Elimination of Toxicants	5
3	1/30	Biotransformation	6
	2/1	Toxicokinetics (abbreviated)	7
4	2/6	Exam #1	
	2/8	Chemical Carcinogenesis Genetic Toxicology	8 9
5	2/13	Cardiovascular Toxicology	18
	2/15	Cardiovascular Toxicology Toxic Effects of Calories	18 27
6	2/20	Respiratory Toxicology Toxic Effects of Solvents / Vapors Toxicology on Trial / Graduate Student Topics	15 24
	2/22	Environmental Toxicology	29
7	2/27	Exam #2	
	2/29	Nervous System Toxicology	16
8	3/5	Toxic Effect of Metals Toxic Effects of Pesticides	23
	3/7	PBL - Vaccines	22
9	3/12	Spring Break	
	3/14	Spring Break	
10	3/19	Developmental Toxicology	10
	3/21	Endocrine Toxicology	21
11	3/26	Reproductive Toxicology	20
	3/28	Analytical and Forensic Toxicology Clinical Toxicology	32 33
12	4/2	Exam #3	
	4/4	Nanotoxicology	28
13	4/9	Toxic effects of Plants and Animals (Poisons and Venoms)	26
	4/11	Ecotoxicology	30
14	4/16	Graduate Student (5370) Presentations	
	4/18	Toxicology on Trial	
15	4/23	Toxicology on Trial	
	4/25	Toxicology on Trial	
16	4/30	Toxicology on Trial	
	5/2	Toxicology on Trial	
17	5/7	Final Exam 10:30 a.m.– 12:30 p.m.	

*Topics or assignments will change as needed. Announcements regarding such changes will be made during regular class hours.