



We wish to acknowledge this land on which the University of Toronto operates. For thousands of years it has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today, this place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land..

NFS488H1– Nutritional Toxicology

2024 Winter Term

Course Instructor: Dr. Amel Taibi

Email: amel.taibi@utoronto.ca

Lecture Hours: Wednesdays from 1 pm to 4 pm

Course Description

The course introduces the basic concepts of toxicology and illustrates their application in the context of food and nutrition. Emphasis is placed on understanding the occurrence, mechanisms of action, safety implications, and health impacts of chemicals naturally present in or added to foods. The course also covers the basics of toxicogenomics, exploring the intricate interplay between toxic substances, nutrients, human genetics, and gut microbiota within the context of health and diseases. Additionally, regulatory issues associated with food and nutritional toxicology, as well as the evaluation of food safety and control measures, will be addressed.

Prerequisites

BCH210H1, NFS284H1

Learning Objectives

By the end of this course, the students will be able to:

1. Define Scientific Concepts:

- Define fundamental scientific terminology and describe core concepts in toxicology as they apply to nutrition and the food supply.

2. Identify and Evaluate Sources of Toxicity:

- Identify and describe different sources of toxicity in the food supply, critically evaluating their potential effects on health.

3. Understand Regulatory and Safety Issues:

- Understand regulatory issues related to food and nutritional toxicology and evaluate safety implications.

4. Critically Debate Hot Topics:

- Engage in critical debates and lead seminars and discussions on contentious issues, including controversial findings in nutritional toxicology-related research and dietary interventions.

5. Synthesize Literature and Present New Ideas:

- Summarize scientific literature, present new ideas, and methodologies for nutritional toxicology-related research, culminating in the composition of a review paper on the mediators of the effects of dietary components on health.



Teaching Assistant

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Course materials

No textbook is required for this course. Materials and readings will be posted on Quercus.

Office Hours

Online: over Zoom.

In-person: Wednesdays after class.

Consultations are welcomed and highly encouraged. Please contact your instructor by email to arrange a meeting.

Any emails addressed to Dr. Taibi must have a brief, relevant subject line and come from a **@utoronto.ca email account**.

Course communication

All the announcements will be made on the course website; it is the student's responsibility to remain updated with the course messages and to activate the course notifications.

The course website includes a discussion board for students to ask questions about lecture material and general course content.

If you have a question about course material, please post it there for the benefit of everyone.

Individual queries to the instructor about marks or personal matters should be emailed.



Course Overview and Assessment

Course Schedule

Date	Lecture Topic	Tutorial Activities	Deadlines
Week 1 (Jan 10)	Basic Concepts of Nutritional Toxicology	Assortment of students in groups and assignment of topics	
Week 2 (Jan 17)	Toxicological Studies		- Selection of WWW topic - Selection of Seminar topics
Week 3 (Jan 24)	Approaches to setting Dietary Reference Intakes for Toxicity Food Safety and Regulations	Presentation planning time (Groups) In-class Activity	- Selection of the research paper to be presented in seminar I
Week 4 (Jan 31)	Weird and Wonderful World of Nutrition: Effects of substances in food on human health	WWW Individual Presentations	WWW Discussion Posts due
Week 5 (Feb 7)	Host Genetic Variability and Toxicogenomics Role of microRNAs in xenobiotic toxicity	In-class Activity	Response to the WWW discussion posts due
Week 6 (Feb 14)	Seminar I Emerging Topics: Paper presentation (Part 1)	Weekly group presentations start. Group Presentations	Peer evaluation of the group presentation
Week 7 Feb 21	No class — Winter break	No tutorial	
Week 8 (Feb 28)	Seminar I Emerging Topics: Paper presentation (Part 2)	Group Presentations	Peer evaluation of the group presentation
Week 9 (March 6)	The gut Microbiota, Dietary, and Xenobiotics interactions	In-class Activity	Critical discussion of the seminars (response to the discussion post)
Week 10 (March 13)	Guest Lecture: Dr. Lingtak-Neander Chan University of Washington (USA) Dynamics of drug-nutrient interactions and their impact on nutritional status		Outline of review paper due
Week 11 (March 20)	Seminar II Research Projects (Part 1)	Group Presentations	Peer evaluation of the group presentation
Week 12 (March 27)	Seminar II Research Projects (Part 2)	Group Presentations	Peer evaluation of the group presentation
Week 13 (April 3)	In-class written exam		Review paper Due



Assessment breakdown

Assessment	Weight	Date
Weird and Wonderful World of Nutrition Assignment (individual)	10%	January 31
Seminar Presentations (Group; 2 x 15%)	30%	Weekly seminar presentations start February 14
Outline of the review paper (Group)	3%	February 13
Review paper (Group)	20%	April 5
Online Discussion and in-class activities (Individual)	12%	From January 24 to March 27
Course Engagement (individual)	2%	All the semester
In-class test (individual)	23%	April 3

1. WWW Individual Presentation and Discussion (10% of course grade):

- Description: Involves a 5-minute individual presentation and initiation of an online discussion on a nutrition-related health phenomenon involving xenobiotics. The substance may be considered "weird" or "wonderful" due to its impact on human health. Instructions will be posted online.

2. Seminar Presentations (30% of course grade):

- Description: Groups of two students will conduct two seminar presentations on food-related substances with potential adverse effects on human health. Detailed instructions and marking rubrics will be provided online.

3. Review Paper (23% of course grade):

- Description: Groups will synthesize scientific literature analyzed during the semester while preparing seminar presentations. The assignment includes two components: an outline and a final critical review paper.

4. Discussion and In-class Activities (12% of course grade):

- Description: Utilizes various tools, including in-class activities and class discussions, contributing to the participation total grade. In-class activities (2% each) must be submitted as per the schedule. Online discussions involve responding to posts and discussions initiated by the instructor or group members. The remaining 2% are based on peer evaluations for seminar group presentations.

5. Course Engagement (2% of course grade):

- Description: Reflects students' overall involvement in the learning process, encompassing asking questions in class or online, in-person attendance, completion of course surveys, and contributions such as suggesting readings, new course content, and ideas. This component contributes 2% to the overall course grade.

6. In-class Final Test (23% of course grade):

- Description: The test, constituting 23% of the overall course grade, is an open-book assessment covering material presented in class, including lectures, seminar presentations, and in-class activities. It will include short-term questions, yes/no questions, and multiple-choice questions.

Missed term tests and late work.

Individual Assignments:

Includes WWW of Nutrition assignment, online discussion, and response to discussion posts.

Students may submit their written assignment (the one-page summary and the post on the discussion board) **up to 24 hours late without penalty**. No additional accommodations will be provided beyond this grace period.

Late submissions will result in a **10% deduction per day**, starting from the due date, for students **without a valid justification**. With a valid justification (i.e medical certificate), assignments submitted more than



three days late will receive a penalty of 10% percent per **day past the original deadline**.

In-class activities must be submitted at the **end of the class**. If a student misses the activities, they will receive a grade of 0 unless an acceptable explanation, backed up with documentation, is presented. In this case, the overall grade will be redistributed among the remaining assessments.

Group Assignments:

Includes group presentations and review papers.

Group presentations are **not subject to a grace period** and must be given on the assigned date, as per the presentation planning time set at the start of the term. Any group member missing the oral presentation must submit a valid justification. They may either receive the group mark (with proof of participation in the assignment's preparation) or arrange a presentation time with the instructor. The remaining group members are still expected to present on the assigned date.

For the review paper (paper outline and final review), a 30% deduction per day will be applied to late presentations.

In-Class Written Test:

Missed test: There are no make-up tests for missed exams. If a student misses the written exam, they will receive a grade of 0 unless an acceptable explanation, backed up with documentation, is presented. In this case, the overall grade will be redistributed among the remaining assessments.

Required documentation for missed work:

A justified medical excuse, with the University of Toronto Verification of Student Illness or Injury form completed by a health care provider. These forms are available from the following website: <https://registrar.utoronto.ca/policies-and-guidelines/verification-of-illness-or-injury/>

Personal distress. A written or verbal explanation to the instructor is required. All discussions with the instructor will be confidential. Students dealing with intense or ongoing personal distress or chronic illness, who may need special and continuing accommodation, may be asked for additional documentation and are advised to discuss their situation with their college registrar.

Please note that poor time management, having several assignments due at the same time, having to study for term tests, etc are NOT compelling reasons for an extension. Students are expected to complete their assignments as best they can, hand them in on time, even if incomplete, and accept that they may not get as high a grade as they would like.

The instructor is dedicated to working with you to help you achieve the best learning experience during this course, however, last-minute (i.e. the night before tests or deadlines for assignments) responses to requests cannot be promised. Work and study ahead of deadlines so the instructor can be of most assistance to you.

Regrade Policy

The students will have one week from the date that the grade is posted to appeal their marks. If the students would like to contest a mark, they must submit a written proposal by email to Dr. Taibi explaining why a re-grade is warranted. The instructor may or may not choose to re-grade, it will depend on how well each student presents their case. The instructor reserves the right to re-read and re-grade the entire work. Be aware that the mark may go up, down, or stay the same.

Plagiarism detection tool (PDT)



“Normally, students will be required to submit their course essays to the University’s plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their essays to be included as source documents in the tool’s reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University’s use of this tool are described on the Centre for Teaching Support & Innovation website (<https://uoft.me/pdt-faq>)”

A link for submitting assignments to PDT will be available on Quercus. If you have problems that prevent you from submitting to PDT, please contact Dr. Taibi to discuss alternatives. All students are expected to either submit to PDT, which is voluntary or provide an alternative. Failure to do so could result in a grade of ZERO for the assignment. For those who do not submit to PDT, as an alternative you will be expected to meet with Dr. Taibi for a short oral test during which you will be asked questions about the writing of the assignment and its content. Your assignment grade may be changed based on how well you answer these questions. Dr. Taibi and/or the teaching assistants review the PDT submissions and will e-mail students if there are any concerns about their writing.

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Accessibility Needs

The University of Toronto is committed to accessibility. If you require accommodations for a disability or have any accessibility concerns about the course, the classroom, or course materials, please contact Accessibility Services as soon as possible at accessibility.services@utoronto.ca or <http://www.studentlife.utoronto.ca/as>