
NFS 488S
Course Syllabus

Nutritional Toxicology
Spring 2014
FG Room 103, Wednesdays, 1:00-4:00pm

Instructors

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Course communications:

The course website is available through the Blackboard Portal page.

- Class announcements will be made on the course website. Please check at least once a week.
- Class readings will be posted online one week prior to being discussed in class.
- Lecture slides will be posted online at least one day before being presented.
- The course website includes a discussion board for students to ask questions related to lecture material and general course content. We recommend that, if you do have a question about course material, you post it here for the benefit of everyone. If you have a question, chances are another student does as well. Individual queries about marks or more personal matters should be made during office hours, immediately after class, or by e-mail.

Course description:

The purpose of this course is to introduce students to the basic principles of nutritional toxicology and discuss issues related to the safety of the Canadian food supply. The course will deal with toxicants found in the food supply, including additives and naturally occurring substances, bacterial contaminants, allergens and compounds produced during food processing and storage. Emphasis will be placed on understanding research study design and applying this knowledge to the discussion and evaluation of findings from peer-reviewed nutritional toxicology studies.

Prerequisites:

- Introductory university-level courses in human nutrition and biochemistry or permission of the instructors.

Broad course goals:

- To introduce basic principles of toxicology and illustrate their application in the context of food and nutrition.

- To examine different types of research study design, and to discuss how these methods can be applied to studying the effects of toxicants in the food supply on health.
- To critically evaluate the findings of nutritional toxicology studies and encourage recognition of misinformation in the public domain regarding food safety, food ingredients, dietary supplements and food packaging.

Course objectives:

At the end of the course, students will be able to:

- Define basic scientific terminology and describe core concepts in toxicology as they apply to nutrition and the food supply.
- Distinguish between different types of research study design and explain some advantages and disadvantages of specific methodological approaches.
- Identify and describe different sources of toxicity in the food supply and discuss their potential effects on health.
- Synthesize findings from the scientific literature on a specific, potentially toxic substance found in the food supply.
- Develop a written report that evaluates the evidence for or against the involvement of a specific, potentially toxic substance in a given health outcome.

Course readings:

Required weekly readings will be posted on Blackboard at least one week before they are discussed in class. No textbook is required.

(OPTIONAL) The following introductory textbooks are available online from the University of Toronto library:

- Omaye, S.T. Food and nutritional toxicology. 2004. CRC Press. Boca Raton, FLA.
- Kotsonis, F.N. and M. Mackey, Eds. Nutritional toxicology, second edition. 2001. Taylor & Francis. New York, NY.

In addition, the following print book will be available on short-term loan at the Gerstein Library:

- Shaw, I.C. Food safety: The science of keeping food safe. 2013. Wiley-Blackwell. Ames, IA.

Course Outline

Week 1 (Jan. 8)	Introduction to nutritional toxicology and risk assessment <i>Dr. Kimball</i>
Week 2 (Jan. 15)	Chemicals in food Research methodology: How to read and interpret a scientific paper <i>Dr. Kimball</i> Overview of course assignment (abstract and written report) discussed in class
Week 3 (Jan. 22)	Foodborne illness I: Bacteria and viruses <i>Dr. Kimball</i> QUIZ #1
Week 4 (Jan. 29)	Foodborne illness II: Parasites and prions <i>Dr. Kimball</i>

Week 5 (Feb. 5)	Natural toxins and bioterrorism <i>Dr. Kimball</i> Abstract of written report due at the beginning of class
Week 6 (Feb. 12)	TERM TEST #1
Week 7 (Feb. 19)	<i>Reading Week - NO CLASS</i>
Week 8 (Feb. 26)	Biotechnology and the food supply <i>Dr. García-Bailo</i>
Week 9 (March 5)	Food allergies and intolerances <i>Dr. García-Bailo</i> QUIZ #2
Week 10 (March 12)	Endocrine-disrupting chemicals <i>Dr. García-Bailo</i>
Week 11 (March 19)	Vitamins, minerals and dietary supplements <i>Dr. García-Bailo</i> QUIZ #3
Week 12 (March 26)	Organic food <i>Dr. García-Bailo</i> Written report due at the beginning of class
Week 13 (April 2)	TERM TEST #2

Course Evaluation

Term tests: (50% of course grade). There will be two term tests, each counting for 25% of the course grade. The format of the tests will be closed book. Each term test will include material covered up to the previous week. Questions will be in short-answer and essay form. **The term tests will take place on February 12 and April 2, during class.**

Quizzes: (15% of course grade). There will be three quizzes, each counting for 5% of the course grade. The format of the quizzes will be closed book. Each quiz will be approximately 15 minutes in length and will ask a short set of questions about the reading assigned for that week. Questions will be in multiple choice and short-answer form. **The quizzes will take place on January 22, March 5 and March 19.**

COURSE ASSIGNMENT: Abstract and Written Report

Abstract of written report: (10% of course grade). The instructors will explain the course assignment in detail and provide a list of possible topics in class on January 15. Students may choose one of these topics, or develop their own topic. If you decide to develop your own topic, you must pose a question that involves a potential toxic substance found in the food supply and its relationship with a specific health outcome. Each student will then individually write a 250-300 word abstract that summarizes the scientific evidence for or against their chosen substance's involvement in the specific health outcome. This abstract will serve as an outline of the full written report to be submitted at the end of the semester. The abstract must include an annotated References section citing no less than 3 peer-reviewed primary research articles (NOT literature reviews). In the annotated References section, for each reference students must describe in two to

three sentences why the article is important. **The abstract will be given to the instructor at the beginning of class on February 5. Abstracts submitted by e-mail will not be accepted.**

Written report: (25% of course grade). Over the course of the semester, each student will individually research and develop a written report (approximately 1,500 words). The goal of the written report is to summarize and critique the scientific evidence for or against the involvement of a potentially toxic substance found in the food supply in a specific health outcome. **A detailed description of the assignment, including possible topics, will be announced in class on January 15.** Each report should include a brief background of the controversy, a summary of at least 3 studies assessing the effect of the potentially toxic substance on the specific health outcome (including a description of possible biological mechanisms), a discussion of the study methodologies, and an evaluation of whether there is sufficient scientific evidence to conclude that the substance is responsible for the specific health outcome. All reports must be written in adequate academic style and provide proper citations throughout the text. The assignment must include a References section citing no less than 10 and no more than 20 peer-reviewed scientific research articles, with no more than two literature reviews. For writing assistance, students may wish to use the resources available at the University of Toronto Academic Writing Centre (Woodsworth College, Room 214):
http://www.wdw.utoronto.ca/index.php/current_students/academic_writing_centre/.

Reports are due on March 26, at the beginning of class. **Reports submitted by e-mail to the instructors will not be accepted.**

Abstracts and written reports must be submitted individually and must represent original work. Plagiarism is a serious academic offense and it will be penalized with a failing grade.

“Normally, students will be required to submit their course essays to Turnitin.com 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 Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site”.

Submission of the abstract and the written report through Turnitin is voluntary, but students who choose not to use Turnitin will be required to meet with the instructors individually for an oral test where they will be asked questions about their preparation of the assignment and their knowledge of its subject matter. More information on how to submit work through Turnitin will be provided in class and on Blackboard, along with the detailed description of the overall course assignment, on January 15.

Students are encouraged to contact the instructors with questions or concerns early in the process of preparing their assignments. More information on what is considered plagiarism at the University of Toronto, and how to avoid it, is available from the following websites:

<http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize>
http://www.utoronto.ca/academicintegrity/Academic_integrity.pdf

Attendance, missed term tests and in-class quizzes, and late work

Attendance is not mandatory. However, most students will find that they will get a lot more out of this course if they attend the lectures, as discussion will be encouraged both between the class and the instructors and within groups of students.

Missed quizzes and term tests: A missed test will result in a grade of 0 for the test if an acceptable and compelling explanation that is backed up with documentation is not presented. There are no make-up tests for missed tests. If a student misses a quiz or a term test, their overall grade will be redistributed among the remaining assessments.

Late submission of either the written report abstract or the full written report will result in a 5% penalty from the total course grade for each day it is late, up to the assignment's total worth.

Re-reading of term tests: In the event that you would like to contest a mark on a term test, one of the instructors will perform a formal re-read of your work after you submit your concerns to us, clearly outlined in writing (*i.e.* via e-mail or as a written submission handed in in class). Please take the time to look over the answer key before formulating your query. Be aware that your mark may go up, down, or stay the same. We reserve the right to re-read and re-grade your entire test, not just the answer that you have challenged.

EXCEPTIONS:

- A justified medical excuse, with University of Toronto Verification of Student Illness or Injury form completed by a health care provider. These forms are available from the following website: <http://www.illnessverification.utoronto.ca/>
- Personal distress. A brief written or verbal explanation to the instructor is required. All discussions with the instructor will be confidential. Students undergoing significant or continued personal distress may need special accommodation. In such instances, students should contact their college registrar to discuss the situation and provide additional documentation, if necessary.

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 disability.services@utoronto.ca or <http://studentlife.utoronto.ca/accessibility>