NFS487F
Professor Ahmed El-Sohemy
Fall 2020

Nutrigenomics & Personalized Nutrition

Department of Nutritional Sciences
University of Toronto

NFS487F Nutrigenomics & Personalized Nutrition – Fall 2020

Lectures: Online synchronous delivery on Wednesdays, from 1 to 3pm ET, via Bb Collaborate. Recordings of each lecture will be posted after class. Recordings will be available on Quercus for the duration of the semester.

Virtual Office Hours: Wednesdays, 3pm – 4pm ET on Bb Collaborate, or by appointment.

Instructor: Dr. Ahmed El-Sohemy
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Material:

Lecture Recordings:
Lecture recordings will be posted on Quercus. Recordings will remain available on the course website for the duration of the term.

Students may not create audio recordings of classes with the exception of those students requiring an accommodation for a disability, who should speak to the instructor prior to beginning to record lectures. Students creating unauthorized audio recording of lectures violate an instructor's intellectual property rights and the Canadian Copyright Act. Students violating this agreement will be subject to disciplinary actions under the Code of Student Conduct. Course videos may not be reproduced or posted or shared anywhere other than the official course Quercus site and should only be used by students currently registered in the course. Recordings may be saved by students on their personal computer for personal use. Because recordings will be provided for all lectures, students may not create additional audio or video recordings without written permission from the instructor. Permission for such recordings will not be withheld for students with accommodation needs.

Textbook (Required):
Nutrigenetics – Applying the Science of Personal Nutrition, by Martin Kohlmeier (Academic Press / Elsevier), 2013. Total of 384 pages, hardcover.
This textbook is available electronically through the UofT library system the following link: https://search.library.utoronto.ca/details?8734506. Students can download the assigned chapters in PDF format.

Students will have the option to undergo genetic testing using Nutrigenomix®.
In addition, students can **register for a free student account** by going to www.nutrigenomix.com. Details will be provided during class.

Evaluation:

Term Test…….. (October 28th)	30%
Individual Presentation ……. (Nov 18th)	30%
Peer Evaluation ……15% (Nov 25th)	
Written Assignment ……. (December 9th)	25%
Total	**100%**

Course Communications

Course announcements will be made via Quercus. It is the students' responsibility to ensure that they check the course website frequently for new announcements, as well as their email inbox for messages from the instructor.

In addition, discussion boards are available on the course website for questions related to class content, the term test and assignments. Check the discussion boards often, as your specific questions may have already been answered.

For questions of a personal nature, you may email the instructor privately.

Term Test

The term test (October 28th) will include all the material covered prior to the test, including required readings. The test will be available on Quercus from 1pm until 2pm, ET. **It is each student's responsibility to ensure that they are available to take the test at this time.** The format will consist of multiple-choice questions and students will have exactly one hour to complete the test. *This will be a closed-book test, to be taken individually, and no aids of any kind will be permitted.*

Special Topics Individual Presentation

Each student will critique a scientific paper assigned by the instructor and record an 8 to 10-minute PowerPoint presentation on the topic using the Loom recording platform: https://www.loom.com/education. All students must upload their presentations in PowerPoint

format to Quercus by 1pm ET on November 18th, and also submit the link to the Loom recording of their presentation at the same time.

The presentation should provide a background of the topic, highlight the issues, and discuss the strengths and limitations of the study. PowerPoint should be used with a large font and clear images, tables and figures (where appropriate). Each presentation must include, at the beginning, a slide with the paper's title, authors, and journal citation information. In addition, the first slide must include the student's name and student number. Evaluation will be based on the clarity and adequacy of the presentation content (75%), and on the style and effectiveness of the recorded delivery (25%).

Peer Evaluation

Each student will be required to watch and evaluate 10 recordings of other students' presentations. The links to these recordings will be sent to each student no later than 1pm ET on November 19th. The peer evaluation for each recording should provide a brief (3 sentences max) summary of the presentation, ask two questions about the study, and list one strength of the presentation as well as one limitation or area for improvement. The assessment of each student's peer evaluation will then be based on the clarity and adequacy of the summary, questions, strengths and limitations. Each student will submit a single Word document containing all 10 assigned evaluations through Quercus, by 1pm on November 25th

Written Assignment

The written assignment must be uploaded to Quercus by 1pm ET on December 9th.

<u>Part 1</u>
Each student will choose one genetic variant and investigate how that variant affects metabolism, nutritional status, or response to specific nutrients or food bioactives, based on available peer-reviewed scientific literature. From the available evidence, the students will select the gene-diet interaction that they deem most scientifically sound and they will develop a mock genetic test report for personalized nutrition that contains a set of recommendations based on that gene-diet interaction. The report can be modeled on the Nutrigenomix report, but it cannot contain a gene-diet interaction that is already present in the Nutrigenomix report. Each mock report must consist of four sections. The first section will provide background information on the specific nutrient or food bioactive and its relationship with health outcomes or nutritional status. The second section will explain how the genetic variant affects metabolism nutritional status, or response of the selected nutrient or food bioactive, and provide a table listing common dietary sources of the nutrient or food bioactive. The third section will consist of a chart showing the rs#, the risk or response genotype, the frequency of the risk or response genotype, and the relative risk of the specific health condition (or relative likelihood of response). Finally, the fourth section will consist of a dietary recommendation for **all** of the possible genotypes. Sections 1 and 2 must cite appropriate sources. The report should not exceed 4 pages (excluding references). Use only double-spaced, type-written text with 12-point

font, numbered pages and 1” margins. The cover page should show the title of the topic, name, student number and date.

Part 2

In addition to the mock genetic test report, each student will develop a sample one-day meal plan ONLY for the risk (or response) genotype, assuming the person with the genotype is the same age and sex as the student. The meal plan will be targeted towards someone who is trying to maintain their weight and overall health (not lose weight, optimize athletic performance, etc.). Assume no dietary restrictions (e.g. vegetarian, gluten-free, religious observance, etc.). The one-day meal plan must include a breakfast, lunch, dinner and a snack, and it must include (or avoid) items that ensure the recommendations provided by the mock report are followed adequately. Overall, the meal plan must also adhere to the general guidelines provided by Canada’s Food Guide.

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.

All students are expected to either submit to Turnitin, which is voluntary, or provide an alternative. Assignments uploaded to Quercus will automatically be submitted to Turnitin, after you indicate agreement with the Turnitin service. If you do not wish to submit through Turnitin, please contact the instructor to discuss an alternate method.

Final Exam - There will be no final exam.

Policy on Missed Term Tests, Late Submissions and Re-Read Requests

Missing the term test without a compelling reason will result in a grade of zero. Late submission of the presentation, peer review and written assignment will result in a 10-point reduction of the grade per overdue day, unless there is a compelling reason for the lateness. Re-reads of the term test and assignments can be requested by emailing the instructor.

Course Outline

Week 1 (Sept 16th)	Introduction to nutrigenomics and personalized nutrition
Week 2 (Sept 23rd)	Nutritional epidemiology and study design Guest Lecturer: Dr. Anthony Hanley
Week 3 (Sept 30th)	'Omics' technologies used in nutrition Chapter 2 "How genetic transmission works"
Week 4 (Oct 7th)	Genetic variation and nutrient response Chapter 4 "How nutrients are affected by genetics"
Week 5 (Oct 14th)	Food Intolerances
Week 6 (Oct 21st)	Genetic determinants of eating behaviours Guest Lecturer: Dr. Bibiana Garcia-Bailo
Week 7 (Oct 28th)	Term test **To be taken on Quercus, 1-2pm ET**
Week 8 (Nov 4th)	Controversies in nutrigenomics research
Week 9 (Nov 11th)	Reading Week – No class
Week 10 (Nov 18th)	Consumer genetics and personalized nutrition Chapter 8 "Keeping genetic information safe" **Individual presentations and links to recordings of presentations to be uploaded to Quercus by 1pm ET**
Week 11 (Nov 25th)	Technologies and commercial applications in personalized nutrition Guest lecturer: Dr. Mariette Abrahams **Peer evaluations of presentations to be uploaded to Quercus by 1pm ET**
Week 12 (Dec 2nd)	Personalized nutrition in healthcare practice Guest lecturer: Dr. Nanci Guest
Week 13 **(Dec 9th)**	Recent advances in nutrigenomics and personalized nutrition **Written assignment due on Quercus by 1pm ET**

******Written assignment to be uploaded to Quercus by 1pm ET, Dec. 9th******

Students with Disabilities or Accommodation Requirements

Students with diverse learning styles and needs are welcome in this course. If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) at the beginning of the academic year by visiting http://www.studentlife.utoronto.ca/as/new-registration . Without registration, you will not be able to verify your situation with your instructors, and instructors will not be advised about your accommodation needs. AS will assess your situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your needs or condition with any instructor, and your instructor will not reveal that you are registered with AS.

Academic Integrity

All students, faculty and staff are expected to follow the University's guidelines and policies on academic integrity. For students, this means following the standards of academic honesty when writing assignments, collaborating with fellow students, and writing tests and exams. Ensure that the work you submit for grading represents your own honest efforts. Plagiarism—representing someone else's work as your own or submitting work that you have previously submitted for marks in another class or program—is a serious offence that can result in sanctions. Speak to the instructor for advice on anything that you find unclear. To learn more about how to cite and use source material appropriately and for other writing support, see the U of T writing support website at http://www.writing.utoronto.ca . Consult the Code of Behaviour on Academic Matters for a complete outline of the University's policy and expectations. For more information, please see http://www.artsci.utoronto.ca/osai and http://academicintegrity.utoronto.ca .

Religious Accommodations

As a student at the University of Toronto, you are part of a diverse community that welcomes and includes students and faculty from a wide range of cultural and religious traditions. The instructor will make every reasonable effort to avoid scheduling tests, examinations, or other compulsory activities on religious holy days not captured by statutory holidays. Further to University Policy, if you anticipate being absent from class or missing a major course activity (such as a test or in-class assignment) due to a religious observance, please let the instructor know as early in the course as possible, and with sufficient notice (at least two to three weeks), so that we can work together to make alternate arrangements.

Specific Medical Circumstances

What should I do if I cannot attend class (in-person or remote) and it is affecting my academic work?

Students who are absent from class for any reason (e.g., COVID, other illness or injury, family situation) and who require consideration for missed academic work should report their absence through the online absence declaration. The declaration is available on ACORN under the Profile and Settings menu. Students should also advise their instructor of their absence.

Resources & supports

If you or someone you know is in distress and there is an immediate risk, call 911.
The following includes supports available to students on all three campuses:

- U of T St. George (Downtown Toronto)
- U of T Scarborough
- U of T Mississauga

Additionally, students have access to U of T My Student Support Program (My SSP) | 1-844-451-9700 24/7. Outside of North America, call 001-416-380-6578.
Culturally-competent mental health and counseling services in 146 languages for all U of T students.

Accommodation for non-medical reasons

There may be times when you are unable to complete course work on time due to non-medical reasons. If you have concerns, speak to the instructor or to an advisor in your College Registrar's office; they can help you to decide if you want to request an extension or accommodation. They may be able to provide you with a College Registrar's letter of support to give to your instructor, and importantly, connect you with other resources on campus for help with your situation.