

NFS487F
Professor Bibiana García-Bailo
Fall 2019

Nutrigenomics & Personalized Nutrition

Department of Nutritional Sciences
University of Toronto

NFS487F Nutrigenomics & Personalized Nutrition – Fall 2019

Lectures: W 1pm – 4 pm, MS2173

Office Hours: After class, or by appointment

Instructor: Dr. Bibiana García-Bailo
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Medical Sciences Building, Room 5326
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Material:

Course notes will be posted on the course website.

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.

Students will have the option to undergo genetic testing using Nutrigenomix®.

In addition, students can **register for a student account** by going to www.nutrigenomix.com. Details will be provided in class.

Evaluation:

Term Test #1..... 30%
(October 23rd)

Special Topics Group Presentation 30%
(Nov 13th, Nov 20th, Nov 27th)

Peer Evaluation 10%

Written Assignment 30%
(December 4th)

Total

100%

Term Test

The term test (October 23rd) will include all the material covered prior to the test, including required readings. The format will consist of multiple choice, short-answer and essay-type questions.

Special Topics Group Presentation

Each group will critique a scientific paper assigned by the instructor and give a 20-minute (maximum) PowerPoint presentation on the topic. Each presentation must include, at the beginning, a slide with the title, date, names of group members and role of each group member. **ALL GROUPS must upload their presentations to Quercus by 10am on November 13th. Each student must upload their presentation individually, even though it will be the same for all group members.** 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). Evaluation will be based on the content and clarity of the presentation, handling of questions, and peer evaluation.

Peer Evaluation

To encourage participation, each student will be required to evaluate each presentation, indicating strengths and areas for improvement.

Written Assignment

Students will be required to choose from one of two assignments, outlined below. ***Students will be required to indicate their choice of assignment through Quercus by November 1st.***

Assignment 1:

Students who choose this assignment will be required to develop a mock report for an individual who has undergone genetic testing for personalized nutrition. This report will provide mock results for a genetic variant known to affect metabolism or nutritional status of a specific nutrient or food bioactive. The students must choose the genetic variant and nutrient based on evidence from available peer-reviewed scientific literature. The chosen variant and nutrient must not overlap with the topic of the paper assigned for your group presentations; in addition, the chosen variant-nutrient interaction must not already be part of the Nutrigenomix report. The report can be modeled on the Nutrigenomix report, and it must consist of four sections. The first section will provide background information on the specific nutrient and its relationship with health outcomes or nutritional status. The second section will explain how the genetic variant affects metabolism or nutritional status of the selected nutrient or food bioactive, and provide a table listing common dietary sources of the nutrient. The third section will consist of a chart showing the $rs\#$, the risk variant, the frequency of the risk genotype, and

the relative risk of the specific health condition. Finally, the fourth section will consist of a dietary recommendation for **all** of the possible genotypes. All four sections must cite appropriate sources. The assignment should not exceed 4 pages (excluding references). Use only single-sided, 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.

OR

Assignment 2:

Students who choose this assignment will be required to write a term paper evaluating the scientific evidence for a specific gene-diet interaction on a specific health-related outcome (eg biomarker, disease, etc). The topic of the written assignment must be different from the topic of the paper assigned for your group presentation. The assignment should not exceed 10 pages (excluding tables, figures and references). Use only single-sided, 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. Special topics (eg. review of gene-diet interactions in a specialized area like pediatrics, performance, mental health, etc.) will be considered, but you must confirm the topic with the instructor in advance.

In either case, assignments must be uploaded to Quercus by December 4th at 3pm. In addition, please submit a hard copy to the Dept. of Nutritional Sciences Main Office (MSB Room 5253A) by December 4th at 3pm.

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 group presentations and the 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 11 th)	Introduction to nutrigenomics and personalized nutrition
Week 2 (Sept 18 th)	'Omics' technologies used in nutrition Chapter 2 "How genetic transmission works"
Week 3 (Sept 25 th)	Nutritional Epidemiology and Study Design Guest Lecturer – Dr. Anthony Hanley
Week 4 (Oct 2 rd)	Genetic variation and nutrient response Chapter 4 "How nutrients are affected by genetics"
Week 5 (Oct 9 th)	Food Intolerances Guest Lecturer – Dr. Ahmed El-Sohehy
Week 6 (Oct 16 th)	Consumer genetics and personalized nutrition Chapter 8 "Keeping genetic information safe"
Week 7 (Oct 23 th)	Term Test #1 (Location TBA)
Week 8 (Oct 30 st)	Genetic determinants of eating behaviours
Week 9 (Nov 6 th)	Reading Week – No class
Week 10 (Nov 13 th)	Group Presentations (Groups 1-4) (ALL presentations to be uploaded to Quercus by 10am, Nov. 13th)
Week 11 (Nov 20 st)	Group Presentations (Groups 5-8)
Week 12 (Nov 27 th)	Group Presentations (Groups 9-12)

******Written assignment to be uploaded to Quercus by 3pm, Dec. 4th******

AND

**A hard copy of the written assignment must be submitted to the Dept. of Nutritional Sciences
Main Office (MSB Room 5253A) by December 4th at 3pm.**

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

If you become ill and it affects your ability to do your academic work, consult the instructor right away. Normally, you will be asked for medical documentation in support of your specific medical circumstances. The University's Verification of Student Illness or Injury (VOI) form is recommended because it indicates the impact and severity of the illness, while protecting your

privacy about the details of the nature of the illness. You can submit a different form (like a letter from a doctor), as long as it is an original document, and it contains the same information as the VOI. For more information, please see <http://www.illnessverification.utoronto.ca> If you get a concussion, break a bone, or suffer some other acute injury, you should register with Accessibility Services as soon as possible.

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.