NFS487F
Prof. El-Sohemy
Fall 2016

Nutrigenomics & Personalized Nutrition

Department of Nutritional Sciences
University of Toronto

NFS487F Nutrigenomics & Personalized Nutrition – Fall 2016

Lectures: W 1pm – 3 pm, MS2172
Tutorials: W 3pm – 4 pm, MS2172

Instructor: Dr. Ahmed El-Sohemy
Department of Nutritional Sciences
Fitzgerald Building, Room 350
Phone: 416-946-5776
e-mail: a.el.sohemy@utoronto.ca
(Office hours are immediately after each lecture or by appointment)

Material:

Course notes and handout material 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.

Students will have the option to undergo genetic testing using Nutrigenomix®. All students can register for a student account by going to www.nutrigenomix.com and selecting Education and Training at the bottom right of the page, then selecting the 'University Courses' tab.

Evaluation:

Term Test #1……..…… 30%
(October 26th)

Special Topics Group Presentation ..…… 30%
(Nov 16th, Nov 23rd, Nov 30th)

Peer Evaluation …….. 10%

Written Assignment …..…… 30%
(December 6th)

Total **100%**

Term Test

The term test (October 26th) will include all of the material covered prior to the test, including required readings. The format will consist of 'short-answer' and 'essay-type' questions.

Special Topics Group Presentation

Each group (4-6 students) will be required to critique a scientific paper assigned by the instructor and give a 20 minute (max) PowerPoint presentation on the topic. An outline consisting of a cover page with the title, date, names of group members, role of each group member, and a copy of the presentation on a USB key (which will be returned to you) will be ***due November 16th*** at the beginning of the class for **ALL** groups. You should also email the presentation to a.el.sohemy@utoronto.ca at least **1 hour** before class starts that day. Always enter "NFS487" in the subject heading of emails. 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 to the instructor by email by November 4th.***

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 and must not already be part of the Nutrigenomix® report. The report can be modeled on the Nutrigenomix® report and 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, frequency of the risk genotype and relative risk of health condition. Finally, the fourth section will consist of a dietary recommendation for each 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. **Two copies** of the assignment are ***due December 5th by 11am*** to the main office (FG316) **AND** email electronic version to instructor at a.el.sohemy@utoronto.ca.

OR

Assignment 2:

Students who choose this assignment will be required to write a term paper evaluating the scientific evidence for a gene-diet interaction. 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. **Two copies** of the assignment are ***due December 5th by 11am*** to the main office (FG316) **AND** email electronic version to instructor at a.el.sohemy@utoronto.ca.

Final Exam

There will be **no** final exam.

Course Outline

Week 1 (Sept 14th)	Introduction to nutrigenomics and personalized nutrition
Week 2 (Sept 21st)	'Omics' Technologies used in nutrition Chapter 2 "How genetic transmission works"
Week 3 (Sept 28th)	Genetic variation and nutrient response Chapter 4 "How nutrients are affected by genetics"
Week 4 (Oct 5th)	Nutritional Epidemiology and Study Design Guest Lecturer - Dr. Anthony Hanley
Week 5 (Oct 12th)	Consumer genetics and personalized nutrition Chapter 8 "Keeping genetic information safe"
Week 6 (Oct 19th)	Case studies and food intolerances
Week 7 (Oct 26th)	**Term Test #1**
Week 8 (Nov 2nd)	Genetic determinants of eating behaviours
Week 9 (Nov 9th)	Biomarkers and recent advances in nutrigenomics
Week 10 (Nov 16th)	Group Presentations (Groups 1-4) **(** All presentations due in class **)**
Week 11 (Nov 23rd)	Group Presentations (Groups 5-8)
Week 12 (Nov 30th)	Group Presentations (Groups 9-12) **(** Written assignment due Dec. 5th by 11am in FG316 **)**