THE UNIVERSITY OF BRITISH COLUMBIA
Food, Nutrition and Health

FNH 350 – FUNDAMENTALS OF NUTRITION

ACKNOWLEDGMENT

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the xwməθkwəy̓əm (Musqueam) people. The land it is situated on has always been a place of learning for the Musqueam people, who for millennia have passed on in their culture, history, and traditions from one generation to the next on this site.

INSTRUCTOR: Dr. Barbara Stefanska
Food, Nutrition and Health (FNH) Program; Faculty of Land and Food Systems

CONTACT: Office hours: Wednesdays, 9AM-12PM (virtual via zoom, directly after class).
E-mail: For confidential questions, you may contact Dr. Stefanska at barbara.stefanska@ubc.ca
For questions related to the course content, please contact Teaching Assistants.

TEACHING ASSISTANTS:

Cayla Boycott, PhD Candidate (Human Nutrition)
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Tony Yang, BSc Student (Senior, Food Nutrition and Health)
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LECTURE TIME & LOCATION:

Mon Wed Fri 9:00 – 9:50 virtual via zoom (a link with a passcode will be sent for every class as an announcement via CANVAS)

PREREQUISITES:

You must have FNH 250 and one of BIOL 201 / BIOC 202 / BIOC 300 as pre-requisites.

COURSE MATERIALS:

- Outline course notes will be posted on CANVAS for you to review before each class and as option to easier follow the class. You are responsible for all materials covered in the class, whether it is included in the notes or not.
- TEXTBOOK: Gropper, S.S.; Smith, J.L.; and Carr, T.P. (2018). *Advanced Nutrition and Human Metabolism*. 7th Edition. Cengage Learning. This textbook is highly recommended. Copies of this text are available for purchase in the UBC bookstore and will be placed on reserve in Woodward library once the library physical spaces are open.
- For additional readings, the textbook by Frayn, K.N. (2010): *Metabolic Regulation – A Human*

Perspective (3rd Edition. Wiley) is highly recommended.

- Readings for projects will include journal articles. Web-links for access to the journal articles or pdf of articles will be posted on CANVAS.

COURSE CONTENT:

This course will cover the macronutrients (carbohydrates, lipids, and protein), fiber, and alcohol. We will also address energy metabolism. We will discuss the structure and function of the macronutrients and fiber; the digestion, absorption and metabolism of macronutrients, fiber, and alcohol; and the metabolic and health implications of excessive and inadequate intake of macronutrients and energy.

LEARNING OUTCOMES/COURSE OBJECTIVES:

At the conclusion of this course students should be able to:

1. Describe key features of the structure of various classes of macronutrients and of fiber.
2. List the functions and food sources of each of the macronutrients and fiber.
3. Explain the processes of digestion and absorption for the macronutrients, fiber and alcohol.
4. Describe the ways in which the macronutrients are transported, stored and metabolized by the body, as well as the means by which waste products of their metabolism are disposed of.
5. Describe the methods used to determine the human requirements for protein and energy.
6. List the factors affecting the requirements for protein and energy, and explain how these factors influence the requirements.
7. Describe the metabolic effects of consuming either excessive or inadequate amounts of the macronutrients, fiber and energy.
8. Describe the effects of feeding and fasting on metabolism.

CLASS FORMAT:

Classes consist of lectures and discussions. You are encouraged to review the course notes before the class. If you wish, you may print the course notes. The course notes will be an outline of the slides used in the lecture and will be posted on CANVAS.

Class participation is encouraged. If you wish to do well in this course, it is important to attend all the lectures. If you miss a lecture, it is YOUR responsibility to download recordings posted on CANVAS and get the notes from another student in the class.

EVALUATION:

Midterm exam (Friday, October 23, 2020)	25%
Final exam (TBA)	48%
Online Quizzes (in total 4; each worth 4%)	16%
Course Discussion (in total 1; in-class activity, 3%)	3%
Take-home Projects (in total 2; 3% each)	6%
Class participation (assessed by in-class questions)	2%

Format of the four quizzes (held on CANVAS) is multiple-choice, fill in an answer, and true/false.

Midterm and final examinations will cover materials posted on CANVAS as well as those presented and discussed in class. The midterm and final exam will be composed of multiple-choice, true/false, and short/long-answer questions, and will be held online on CANVAS.

Make-up exams (midterm or final) will only be given to students, according to the university policies, with a valid excuse. Normally, the student must take the make-up exam within one week of the missed exam.

STUDENT RESPONSIBILITIES:

1. Be prepared for class. Read the material in the course notes and in the related chapters of the textbook.
2. Attend class. If you are absent, it is your responsibility to study the lecture recording (posted on CANVAS), obtain notes from other students in the class, etc.
3. ASK QUESTIONS if you do not understand something.
4. If you have a complaint about the course, PLEASE DISCUSS IT WITH ME. Constructive suggestions are welcome.
5. Please be on time for class (virtual via zoom).

POLICIES AND RESOURCES TO SUPPORT STUDENT SUCCESS

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available at the following link: https://senate.ubc.ca/policies-resources-support-student-success

ACADEMIC HONESTY

Academic honesty is a core value of scholarship. Cheating and plagiarism (including both presenting the work of others as your own and self-plagiarism), are serious academic offences that are taken very seriously in the Faculty of Land and Food Systems. By registering for courses at UBC, students have initiated a contract with the University that they will abide by the rules of the institution. It is the student's responsibility to inform themselves of the University regulations.

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the university policies and codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work; nor should you help others to do the same. For example, it is prohibited to: share your past assignments and answers with other students; work with other students on an assignment when an instructor has not expressly given permission; or spread information through word of mouth, social media, or other channels that subverts the fair evaluation of a class exercise, or assessment. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply if the matter is referred to the President's Advisory Committee on Student Discipline. Careful records are kept in order to monitor and prevent recurrences. Definitions of Academic Misconduct can be found on the following website: http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,54,111,959#10894

INFORMATION FOR STUDENTS IN THE DIETETICS MAJOR

This course, like all required courses in the Dietetics Major, contributes to coverage of the *Integrated Competencies for Dietetic Education and Practice (ICDEP)*. All students in the Dietetics Major should refer to the Mapping of Curriculum to ICDEP page on the dietetics website to familiarize themselves with the requirements (http://dietetics.landfood.ubc.ca/about/mapping-of-curriculum-to-icdep/).

ONLINE LEARNING FOR INTERNATIONAL STUDENTS

During this pandemic, the shift to online learning has greatly altered teaching and studying at UBC, including changes to health and safety considerations. Keep in mind that some UBC courses might cover topics that are censored or considered illegal by non-Canadian governments. This may include, but is not limited to, human rights, representative government, defamation, obscenity, gender or sexuality, and historical or current geopolitical controversies. If you are a student living abroad, you will be subject to the laws of your local jurisdiction, and your local authorities might limit your access to course material or take punitive action against you. UBC is strongly committed to academic freedom, but has no control over foreign authorities (please visit http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,33,86,0 for an articulation of the values of the University conveyed in the Senate Statement on Academic Freedom). Thus, we recognize that students will have legitimate reason to exercise caution in studying certain subjects. If you have concerns regarding your personal situation, consider postponing taking a course with manifest risks, until you are back on campus or reach out to your academic advisor to find substitute courses. For further information and support, please visit: http://academic.ubc.ca/support-resources/freedom-expression.

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FNH 350: Fundamentals of Nutrition
Lecture Schedule (Term 1, Winter 2020/21)

#	Date	Topic	Assignment Textbook	Instructor
1	Sep 9	Introduction	Chapter 2	Stefanska
2	Sep 11	Introduction/Review: Gastrointestinal Tract and Related Organs	Chapter 2	Stefanska
3	Sep 14	Carbohydrates: Functions, Classes, Structures, Food sources	Chapter 3	Stefanska
4	Sep 16	Carbohydrates: Digestion and Absorption	Chapter 3	
5	Sep 18	Carbohydrates: Glucose Transport, Glucose Control	Chapter 3	Stefanska
6	Sep 21	Carbohydrate Metabolism: Glycolysis, Tricarboxylic Acid Cycle	Chapter 3 (Quiz #1 announced)	Stefanska
7	Sep 23	Carbohydrate Metabolism: HMP shunt, Gluconeogenesis, Glycogenolysis, Glycogenesis	Chapter 3	Stefanska
8	Sep 25	Carbohydrate metabolism: at Fasting and Fed State; Review: Carbohydrate Metabolism	Chapter 3	Stefanska
9	Sep 28	Fiber: Definition, Properties, Physiological Effects	Chapter 4 (Quiz #1 open) Project 1 Announced	Stefanska
10	Sep 30	Fiber and Chronic Diseases	Chapter 4	Stefanska
11	Oct 2	Lipids: Properties and Classification	Chapter 5	Stefanska
12	Oct 5	Lipids: Digestion, Absorption	Chapter 5	Stefanska
13	Oct 7	Lipids: Lipoprotein, Transport	Chapter 5 (Quiz #2 announced)	
14	Oct 9	Lipids: Effect of dietary and lifestyle factors on blood lipid profile	Chapter 5 *Project 1 Due*	Stefanska
	Oct 12	**Thanksgiving (no class)**		
15	Oct 14	Lipids: Omega-3-fatty Acids	Chapter 5 (Course Discussion announced)	Stefanska
16	Oct 16	Lipids: Lipid Metabolism at Fed And Fasting State	Chapter 5 (Quiz #2 open) ***(Midterm***	Stefanska

			announcement)	
17	**Oct 19**	**In class Course Discussion: Case studies**		TA
	Oct 21	Review for Midterm Exam	Chapters 2-5	Stefanska/TA
	Oct 23	***Midterm Exam***	***Lectures 1-17***	Stefanska/TA
18	Oct 26	Alcohol	Chapter 5	Stefanska
19	Oct 28	Protein: Function and Structure	Chapter 6	Stefanska
20	Oct 30	Protein: Digestion, Absorption	Chapter 6	Stefanska
21	Nov 2	**Protein: Protein requirements**	Chapter 6	**Guest: Dr. Rajavel Elango**
22	Nov 4	Protein: Intestinal Amino Acids Metabolism	Chapter 6 (Quiz #3 announced)	Stefanska
23	Nov 6	Protein: Anabolism, Fed State	Chapter 6	Stefanska
24	Nov 9	Protein: Catabolism	Chapter 6	Stefanska
	Nov 11	**Remembrance Day (no class)**		
25	Nov 13	Protein: Protein Quality and Its Assessment	Chapters 6 (Quiz #3 open)	Stefanska
26	Nov 16	Integrated Metabolism, Part I	Chapter 7	Stefanska
27	Nov 18	Integrated Metabolism, Part II	Chapter 7 Project 2 Announced (Quiz #4 announced)	Stefanska
28	Nov 20	**Guest Lecture: Ketogenic Diet**		**Guest: Dr. David Harper**
29	Nov 23	Energy: Energy Balance and Imbalance	Chapter 8	Stefanska
30	Nov 25	Energy: Methods for measuring body composition	Chapter 8	Stefanska
31	Nov 27	Energy: Components of Energy Expenditure	Chapter 8 (Quiz #4 open)	Stefanska
32	Nov 30	Energy: Methods for assessment of energy expenditure	Chapter 8	Stefanska
	Dec 2	Final Review	*Project 2 Due*	Stefanska/TA
	Dec 7-22	***Final Exam***	***All Lectures (Comprehensive Exam)***	