Food, Nutrition and Health (FNH) Program
Faculty of Land and Food Systems

FNH 160: INTEGRATED PHYSIOLOGY FOR HUMAN NUTRITION I (3 credits)

ACKNOWLEDGMENT:

UBC's Point Grey Campus is located on the 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:

Elizabeth Novak, PhD
Lecturer, Food Nutrition and Health Program

CONTACT:

Office hours: **On Zoom by appointment, please use the Canvas calendar to book**
For questions related to course content, please post on **Piazza (discussion board available on Canvas)**.
For confidential questions, the instructor can also be reached via the **Canvas email tool**

TEACHING ASSISTANTS:

Amelie Zhang – Graduate Student, Human Nutrition
Priyal Tailor – Graduate Student, Nutrition and Dietetics
Shelby Cender - Graduate Student, Nutrition and Dietetics
Simran Sappal - Graduate Student, Nutrition and Dietetics

LECTURE TIME & LOCATION:

Tuesdays & Thursdays, 3:30-4:50 PM
MCLD 2002

PREREQUISITES: One of CHEM 11, CHEM 12, CHEM 100, CHEM 110, CHEM 111 and one of BIOL 11, ATPH 12, BIOL 12, BIOL 111.

COURSE DESCRIPTION:

Basic principles in human physiology, including function of the nervous, endocrine, musculoskeletal and digestive systems, integration across systems, maintenance of homeostasis, and application to human nutrition.

COURSE OBJECTIVES:

1. **Describe** the levels of organization in the human body from chemical to cellular, tissues, organs, and organ systems
2. **Understand** the basic anatomy and physiology of the nervous, endocrine, musculoskeletal, and digestive systems
3. **Describe** the relevance of homeostasis and examples of homeostatic mechanisms in the body
4. **Explain** how integration across the nervous, endocrine, musculoskeletal, and digestive systems is necessary for normal body processes and maintenance of health
5. **Apply** knowledge to real-life cases relevant to human nutrition

COURSE FORMAT:
This course will be delivered through **3 hours of in-person class time each week**. Classes will include a combination of lectures, demonstrations, and interactive questions and discussions. Online materials, including course notes, practice questions, and discussion boards will be available on Canvas to support your learning.

COURSE MATERIALS:

- **Canvas:** The FNH 160 Canvas site will be used as an important learning and communication resource providing lecture slides, quizzes and assignments, discussion boards, and course announcements.
- **iClicker cloud:** Students are required to have an iClicker device (eg. phone, tablet, or laptop) and account registered to their name and student number
- **Strongly recommended textbook:** Sherwood L, Ward C. Human Physiology from Cells to Systems. 5th Canadian Ed. 2018. Cengage. Older and US versions are acceptable.

EVALUATION:

1. Participation (Clicker)	3%
2. Online quizzes (9 @ 1% each)	9%
3. Case studies (3 @ 5% each)	15%
4. Homeostasis & Integration Discussion	8%
5. Midterm exam	25%
6. Final exam	40%

Class participation will be assessed through iClicker questions posed during class. These can be done in-person or remotely while viewing the class livestream. Students will receive 3 marks for participation in at least 80% of classes, 2 marks for participation in 65-79%, and 1 mark for participation in 50-64% of questions.

Online quizzes will be done on Canvas and are designed to test your understanding of concepts and identify areas needing review. Quizzes may include both multiple choice and short answer questions.

Case studies will apply course content to scenarios relevant to nutrition. Case studies must be submitted by the dates listed on the course outline.

The **homeostasis & integration** discussion will ask you to choose a disorder, describe how homeostasis is disrupted and how this influences other body systems. You will also be asked to comment on two of your classmates' posts in a small group discussion. Full instructions for all assessments will be available on Canvas.

Midterm and final examinations: The examinations will test your understanding of all material covered in class. Both the midterm and final examinations will include multiple choice and short-answer questions. In the event where a student must miss the midterm due to illness, the student is required to inform the instructor at the earliest possible time to arrange for a makeup exam, if possible. If a makeup exam is not possible, the marks will be allocated to the final exam.

Policy on late and missed assessments: Quizzes and assignments must be completed independently and submitted by the deadlines indicated in the course schedule. Late quizzes will not be accepted, as the answers will be revealed after the closing date. Late assignments will be subject to a 10% deduction per day late. In the event where a student must miss a quiz or case study with a valid excuse, the corresponding mark will be allocated to the final.

STUDENT RESPONSIBILITIES:

1. **Attend and engage in class.** Come prepared to listen, take notes, and participate in class.
2. **Review** the course material and related course chapters of the textbook. Looking at the material multiple times, and trying to recall (testing yourself, not just reading) will help solidify your understanding.
3. Use the **resources** available to you (instructor, textbook, Canvas site, discussion board, quizzes, and assignments) to enhance your learning.
4. **Ask questions** both in and out of class. You can post your questions about course content on the Canvas discussion board or bring your questions to the instructor's office hours.
5. **Do your own work.** Collaboration during class and study time is encouraged but all submitted work must be your own. **This also means you are not permitted to use AI tools, including ChatGPT for course assessments, unless otherwise stated.** Academic honesty is a core value of scholarship and is taken extremely seriously in this course. Failure to follow the appropriate policies, principles, rules, and guidelines of the University with respect to academic honesty may result in disciplinary action.
6. **Connect** concepts from this course to knowledge gained in other courses and your own experiences. Try to **apply** what you learn in this course to your own life.

UNIVERSITY POLICIES:

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 on the UBC Senate website (https://senate.ubc.ca/policies-resources-support-student-success).

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. 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

Studying with others or discussing issues with them is completely legitimate and is encouraged; however, collaborating with others while completing case studies or quizzes is not, nor is informing others of what the questions were. Both providing this information to someone else, or using that information, are considered cheating and would constitute academic misconduct. Please be aware that plagiarism or cheating of any kind will be cause for "no credit" on the assignments and possible failure in the course.

Unless otherwise stated, the use of generative AI tools, including ChatGPT and other similar tools, to complete or support the completion of any form of assignment or assessment in this course is not permitted and would be considered academic misconduct.

COURSE TOPICS AND SCHEDULE*

DATES	TOPICS	ASSESSMENT	TEXTBOOK READINGS
Introduction & Levels of Organization			
Jan 7 - 9	**Introduction** – Course overview. Basic terminology, levels of organization, homeostasis		Chapter 1
Jan 14	**Cell Physiology:** Membrane transport, cell signaling	**Quiz 1 (Orientation):** Due Jan 16	Ch 2
Communication & Regulation			
Jan 16 – Feb 6	**Nervous system:** Action potentials and synaptic transmission. Function and maintenance of the central nervous system. Functions of the peripheral nervous system: somatic, special senses, and autonomic nervous system.	**Quiz 2:** Due Jan 23 **Discussion 1:** Due Jan 28 **Quiz 3:** Due Jan 30 **Quiz 4:** Due Feb 6 **Case Study 1:** Released on Feb 4, Due Feb 11	Ch 3-5
Feb 11 – Mar 11	**Endocrine system:** Basic principles of endocrinology. Functions and regulation of the major hormones of the pituitary, pineal, thyroid, adrenal, and pancreatic glands. Endocrine response to stress, regulation of fuel metabolism, regulation of calcium balance and bone growth. **Integration:** Neuroendocrinology – interactions between nervous and endocrine system **NO CLASS FEB 18 – 20 – Reading Break**	**MIDTERM EXAM: FEB 13 – In Class** **Quiz 5:** Due Mar 6 **Case Study 2:** Released on Mar 4, Due Mar 11 **Quiz 6:** Due Mar 13	Ch 6-7
Movement			
Mar 13 – Mar 20	**Musculoskeletal system:** Muscle fibres, mechanics of muscle contraction, movement, smooth muscle. **Integration:** Somatic nervous system and movement	**Discussion 2**: Mar 18 **Quiz 7:** Due Mar 20 **Quiz 8:** Due Mar 27	Ch 8
Digestion & Absorption			
Mar 25 – April 8	**Digestive system:** Major and accessory organs of the digestive tract, physiology of digestion and absorption. **Integration**: Motility and muscle fibres of the digestive system. Endocrine and nervous regulation of digestion.	**Discussion 3:** Due April 1 **Quiz 9:** Due April 3 **Case Study 3:** In Class April 3	Ch 16

*Schedule subject to change. Instructor will notify students of any changes by Canvas announcements