

FOOD 2001 PRINCIPLES OF NUTRITION (Fall 2024)

Instructor: Dr. Apollo Tsopmo, Department of Chemistry
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Description: This course addresses the relationship between nutrition and health. The focus is on healthy eating and strategies for modifying food patterns within the context of lifestyle and health states.

Format:

Lecture: 3 hours per week (2 x 1.5 h), **Tuesdays and Thursdays 11:30 - 1:00 pm, Room 517 Southam Hall**

Essential points for notes will be on slides (PowerPoint) used during classes. Other information will come from text, tables, and figures in the textbook, and from handouts and links provided by the instructor.

Lectures, assignments, and tests will prepare students to meet the required learning outcomes and, thus, to achieve a passing grade in this course.

Students' responsibility:

You are expected to attend classes, do any required reading; complete homework and tests. You are responsible with being familiar with all dates and deadlines listed in this course outline and posted on Brightspace.

You are encouraged to ask questions during lectures. The instructor will be available after classes to answer questions.

Before each class, we will review the previous class material.

Learning Outcomes:

1. Explain the role of nutrients, describe methods to assess diets and strategies to find reliable nutritional information
 - a) List, classify, and provide the function of nutrients in foods
 - b) Calculate food energy based on macronutrient compositions
 - c) Assess diets using established methods: diet records, food guides, dietary reference intakes, nutrition fact table
 - d) Assess nutritional information from TV, internet or newspaper
2. Describe cell needs and basic metabolism
 - a) Cellular organization of the human body and general metabolism of macronutrients
 - b) Describe the role hormones and vitamins in the metabolism of foods
 - c) Describe the contribution of each organ of the gastrointestinal system to digestion, absorption, transport, and elimination of foods

- d) Discuss the relationship between foods and conditions such as gastroesophageal reflux, ulcer, diarrhea, etc.
3. Explain the role of nutrients in promoting and preventing chronic diseases
 - a) Identify nutrients that function as electrolytes and describe how they assist in the regulation of a healthy fluid balance
 - b) Discuss the role of certain vitamins and non-nutrients in protecting cells from oxidative damage and their involvement in cardiovascular diseases or cancer
 - c) Identify nutrients involved in bone and blood health
4. Describe how nutrition can be used to achieve a healthy bodyweight
 - a) Define and understand what constitutes a healthy bodyweight, list methods to assess body composition
 - b) Identify and discuss components of energy expenditure
 - c) Define physical activity and the components of fitness
 - d) Describe how nutrients are used during physical activity
 - e) Discuss the effects, if any, of a high-protein diet or supplement on activity performance

Class Format: Lecture (2 x 1.5 h) or twice a week

Pre-requisites

CHEM 1002 (General Chemistry II), BIOL 1103 (Foundations of Biology I). This course is an introduction and an overview to nutrition, with an emphasis on “nutrition for health”. The knowledge of chemistry and biology is essential.

Evaluation:

Course content will be tested through assignments mid-term and final exams. Final grades will be assigned as follows: A+ ≥ 90%, A ≥ 85%, A- ≥ 80% B+ ≥ 77% B ≥ 73%, B- ≥ 70% C+ ≥ 67% C ≥ 63%, C- ≥ 60%, D+ ≥ 57%, D ≥ 53%, D- ≥ 50%, and F < 50%.

- Assignment A 10%
- Mid-term test 30%
- Assignment B 20%
- Final Exam 40%

COMPONENT	GRADE VALUE
ASSIGNMENT A	10%
ASSIGNMENT B	20%
MIDTERM	30%
FINAL EXAM	40%

Assignment A: Role of nutrition in health: The assignment will be related to role of nutrition on health and the use of Canadian Food Guide for healthy eating. Further details will be given in class.

Assignments: Role of nutrition in health: The assignment will be related to role of nutrition on health and the use of Canadian Food Guide for healthy eating. Determine nutrients content of foods; Calculate energy or calorie contents of foods, Assess the adequacy of diet; Find good sources of nutritional information; Record and analysis of your own diet; Assess diets (Calculate

concentration and energy (calorie) from proteins, carbohydrates fats (total fat, omega-3, trans fat), vitamins/minerals) and suggest appropriate changes to them more nutritious.

Mid-term test and final exams

They will include multiple choices and short answers questions focusing on lecture materials, learning activities, and discussion. Example of questions will be given in class and on Brightspace. Other examples are found at the end of chapters in the textbook.

If you are unable to complete an assignment or test due to medical reasons or compassionate reasons, please contact the instructor. In these circumstances, the instructor will arrange an extension for the assignment or another date for writing the test.

If you do not attend the final exam, contact your Student Advisor for procedures for deferred exams.

Required Textbook:

Nutrition: A Functional Approach, 4th Canadian Edition

by Thompson, Manore, Hartman & Lafave
© Pearson Education Canada
ISBN for Ebook-9780137487066

The 3rd Canadian Edition is an alternative option.

Recommended reading:

Discovering Nutrition, Third (3rd) Edition

Paul Insel, R. Elaine Turner, Don Ross: ISBN 9780763758738

Internet Sites:

Health Canada, dietitians of Canada, www.eatright.org, Canadian Food Inspection Agency
www.heartandstroke.ca, www.diabetes.ca, www.cancer.ca, www.osteoporosis.ca National
Eating Disorder Information Centre, Public Health Agency of Canada,

Topics to cover:

1. Nutrition and Health Promotion

Definitions of nutrition, health, and nutrients
Characteristics of healthy diets
Influence of lifestyle, culture, etc. on food choices
Types of nutrition research studies providing scientific evidence
Differentiation of nutritionists versus dietitians

❖Chapter 1:

2. Evaluating the Nutritional Adequacy of a Diet

Methods for analysis of food intake
Nutrition Recommendations for Canadians
Dietary Reference Intakes (DRIs): Goals and DRI terms
Interpretation of food intake
Eating Well with Canada's Food Guide
Food labels and nutrition information

❖Chapter 2:

3. Utilization of Nutrients by the Body (General Metabolism)

Digestion, absorption, transport, metabolism, storage and excretion of nutrients
Diseases of the digestive tract

❖**Chapter 3:**

4. Carbohydrates

Types, food sources, functions and requirements; Roles in health and disease
Artificial sweeteners
Lactose intolerance
Diabetes

❖**Chapter 5:**

5. Lipids

Types, food sources, functions and requirements
Fat replacers
Role of dietary fat in the development of cardiovascular disease

❖**Chapter 6:**

6. Proteins

Types, food sources, functions and requirements
Protein quality
Disorders related to inadequate protein intake

❖**Chapter 7:**

7. Nutrients Involved in Fluid and Electrolyte Balance

Body needs of water
Nutrients that function as electrolytes in our bodies
How electrolytes assist in the regulation of fluid balance
Hypertension: lifestyle changes to reduce hypertension

❖**Chapter 8**

8. Nutrients that Function as Antioxidants

Vitamins, minerals, and other compounds that stabilize free radicals independently or function within complex antioxidant enzyme systems
Toxicity of phytochemicals or antioxidant vitamins
Relationship between antioxidant nutrients and cancer
Antioxidants that can reduce our risk for cardiovascular disease

❖**Chapter 9 & 10**

9. Nutrients Involved in Energy Metabolism

Vitamins and minerals that help generate energy from foods
Role of vitamin K, iron, zinc, and copper in blood health
Components of blood
Association among folate, vitamin B12, and vascular disease

❖**Chapter 9**

9. Nutrients involved in Bone Health

Cortical bone and trabecular bone
Processes of bone growth, modelling and remodeling
Vitamins and minerals in maintaining bone health and their food sources
Osteoporosis: impacts on a person's health, factors that influence our risk

❖**Chapter 10**

11. Energy Balance and Healthy Body Weight

What is a healthy weight?
Methods for assessing body composition
Components of energy expenditure
Genetic influence of weight control
Diets for weight loss or weight gain
Eating disorders
❖ **Chapter 4**

12. Nutrition and Physical Activity

Concepts of physical activity
Components of fitness
Benefits of being physically active
Sport drinks, food supplements, and ergogenic aids
❖ **Chapter 11**

PLEASE REFER TO CARLETON UNIVERSITY ACADEMIC REGULATIONS REGARDING ACADEMIC INTEGRITY, EXAMINATION POLICIES, ETC.

Plagiarism and Cheating (quoted from section E.14 of the Academic Regulations of the University) <http://www.carleton.ca/cuuc/regulations/acadregsuniv14.html>

Plagiarism is presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own. Plagiarism includes reproducing or paraphrasing portions of someone else's published or unpublished material, regardless of the source, and presenting these as one's own without proper citation or reference to the original source.

Cheating in examinations or tests may take the form of copying from another student or bringing unauthorized materials in the exam room (e.g., crib notes, pagers or cell phones). Exam cheating can also include exam impersonation. A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty.

When in doubt about any practice, **ask your professor or instructor.**

Examinations: Students are required to follow proper examinations procedures. A student who commits a violation of this policy on an examination, test, or take home examination, or obtains or produces an answer or unfair advantage by deceit, fraud, or trickery, or by an act contrary to the rules of the examination are subject to the sanction.

By enrolling in this course, students accept a commitment to academic freedom for all participants, themselves, and the instructor. The study of nutrition may expose you to foods you don't like. You must be willing to examine the relevant texts and be willing to discuss, verbally and in writing.

Course Outline (Syllabus) Information on Academic Accommodations

Requests for Academic Accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Religious obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Academic Accommodations for Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. carleton.ca/pmc

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and is survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual-violence-support

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>

For more information on academic accommodation, please contact the departmental administrator or visit: students.carleton.ca/course-outline