



CAMOSUN COLLEGE
School of Arts & Science
Department of Chemistry & Geoscience

CHEM-117-001
Introduction to Nutrition
Winter 2020

COURSE OUTLINE

The course description is online @ <http://camosun.ca/learn/calendar/current/web/chem.html>

Ω Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

1. Instructor Information

(a) Instructor	Jamie Doran, Ph.D.
(b) Office hours	Monday, 12:00 PM to 1:00 PM Tuesday, 3:00 PM to 4:00 PM Wednesday, 12:00 PM to 1:00 PM Thursday, 5:00 PM to 6:00 PM Friday, 3:00 PM to 4:00 PM <i>Please make an appointment at other times.</i> Everyone is welcome to contact me by email, including in the evenings and on weekends.
(c) Location	Room 350C, Fisher Building, Lansdowne Campus
(d) Phone	(250) 370-3441 Alternative: _____
(e) E-mail	jdoran@camosun.ca

2. Intended Learning Outcomes

Upon completion of this course the student will be able to:

1. Explain the fundamental roles and importance of dietary proteins, lipids, carbohydrates, vitamins and minerals.
2. Make basic decisions about relevant aspects of their personal diets.
3. Evaluate information concerning the fundamental aspects of diet, including certain dietary supplements, and relate this information to human health.

3. Required Materials

- (a) Text

Nutrition: A Functional Approach. Third Canadian Edition. J. Thompson, M. Manore & J. Sheeshka. Pearson Canada. Toronto. 2014.

Textbooks are available from the Lansdowne Campus Book Store.
A copy is on reserve at the Lansdowne Campus Reserve Library.

- (b) Other

Course package

The course package, *Chem 117 - Introduction to Nutrition: Course Study Guides, Chapter Outlines & Practice Questions, 2020 Edition*, is available from the Lansdowne Campus Book Store.

This course package is required material. Each chapter study guide includes an assigned reading list, a listing of the most salient figures and tables, a list of the relevant vocabulary, and sets of practice questions.

Supplementary materials

Nutrition is both a complex subject area and a relatively new field of science in which the knowledge base is rapidly advancing. It is not uncommon for current reports in nutrition to provide incomplete, conflicting or controversial information. Articles from scientific and medical journals and medical newsletters may be provided to promote the critical thinking that must accompany consideration of the science of human nutrition.

General Supplies

Calculator A basic scientific calculator is required at times in lecture, and during a term test(s) and the final exam. Each student is *required* to provide her or his own scientific calculator. Cell phone-based, tablet-based or computer-based calculators, or graphing calculators cannot be used during term tests or the final exam.

4. Course Content and Schedule

Credits	3 credits
In-class workload	4 hours per week
	• Four 50-minute lectures per week.
Out-of-class workload	4 hours per week
Number of weeks	14 weeks
Pre-requisite courses	Chemistry 11 or Chem 100, and Biology 11 or 12, or Biol 102, or Biol 103
Pre- or Co-requisite course(s)	English 12, or EFP 12; or ENGL 092 and ENGL 094; or ENGL 092 and ENGL 096; or ENGL 103 and ENGL 104; or ENGL 103 and ENGL 106; or ENGL 140; or ELD 092 and ELD 094; or ELD 097; or assessment

Course times and locations

Lectures	Monday, 10:30 AM - 11:20 AM Fisher Building, Room F360
	Tuesday, 8:30 AM - 9:20 AM Fisher Building, Room F360
	Thursday, 8:30 AM - 9:20 AM Fisher Building, Room F360
	Friday, 8:30 AM - 9:20 AM Fisher Building, Room F360

Lecture Outline

Below is a listing of the curriculum as it unfolds in the course. The associated chapter of the textbook is indicated. The chapter study guides in the course package provide very detailed reading guides to encourage reading ahead and to make the use of the textbook efficient and effective. Supplementary material and/or additional information may be used to support the textbook on select topics.

I. Introduction - Nutrition & Health

- o Nutrition and the scientific roots of good health
- o Classes of micro- and macro-nutrients
- o Nutrient intake in relation to energy intake

Chapter One

- Essential nutrients including vitamins and minerals
- DRI, RDA, AI, UL, EER & other measures of nutritional requirements
- Evidence-based medicine and related approaches to nutritional research
- Bases for the controversies in the field of nutrition
- Reliable scientific sources of nutritional information
- Effects of potential alcohol intake
- Nutrigenomics

II. Diet & Nutrition

Chapter Two

- Health science bases of a nutritious diet
- Food labelling & interpretation
- Canadian & US dietary guidelines
- Introduction to the Mediterranean diet & other dietary plans (examined in greater breadth later in the course)
- Nutrition, chemistry & biochemistry of phytochemicals

III. Biochemistry & Physiology of Digestion & Absorption

Chapter Three

- Appetite vs. hunger
- Gastrointestinal regulation & the gut-brain axis
- Gastrointestinal function – digestion, absorption & elimination
- Gastrointestinal disorders & disease
- Probiotics & prebiotics

IV. Carbohydrate Nutrition

Chapter Four

- Biochemistry and sources of carbohydrates
- Dietary carbohydrate intake & health science
- Carbohydrate metabolism & hormonal regulation
- Glycemic index & glycemic load
- Alternate sweeteners
- Diabetes & carbohydrate nutrition
- Carbohydrate intake & exercise science

V. Lipid Nutrition

Chapter Five

- Biochemistry & dietary sources of lipids (fats & oils).
- Lipoprotein metabolism
- 'Fats' as fuel for exercise.
- Essential omega-fatty acids, & lipid-soluble vitamins
- 'The good, the bad, and the trans'; the science of optimal dietary intake
- Lipids and potential risks for cardiovascular disease

VI. Protein and Amino Acids Nutrition

Chapter Six

- Essential and non-essential amino acids
- Protein biochemistry & dietary requirements
- Protein & amino acid supplements - truth & myths
- Protein metabolism & health science
- Protein intake and optimal exercise & training effects
- Vegetarian diets & chemical and biochemical nutritional needs
- Disorders & diseases related to protein intake
- Biochemistry, enzymology, & benefits of micronutrients
- Comparison of diets and dietary plans in terms of macronutrients

VII. Fluid & Electrolyte Balance

Chapter Seven

- Functions, chemistry, biochemistry & physiology of fluids & electrolytes
- Maintaining proper hydration
- Effects of hydration & dehydration: nutrition & exercise science
- Disorders related to fluid & electrolyte balance: heat stroke, heat cramps, heat exhaustion & others
- Sport beverages: help or hype?

VIII. Antioxidant Nutrients

Chapter Eight

- Chemistry and biochemistry of antioxidants
- Antioxidant vitamins, pro-vitamins, & minerals
- Evidenced-based medicine & vitamin and mineral supplementation
- Cancer & antioxidants

IX. Relationship of Nutrition to Bone Health

Chapter Nine

- Chemistry and biochemistry of bone health
- Calcium, phosphorous, magnesium, fluoride, & vitamin D intakes
- Nutrition & exercise science: slowing the progression of osteopenia and osteoporosis

X. Energy Metabolism & Blood Health

Chapter Ten

- Biochemistry & bioenergetics: metabolism & exercise
- Energy demands of muscle activity & metabolism
- Blood glucose, and stored glycogen, and fats: regulation of bioenergetics
- Role of B vitamins and other essential nutrients in bioenergetics
- Dietary supplements & bioenergetics
- Assessing energy expenditure
- Nutrition science & the chemistry and biochemistry of blood health
- Disorders of energy metabolism

XI. Energy & Weight Balance

Chapter Eleven

- Health science & body weight(s) and composition(s)
- Genetics and biochemistry of energy and weight balance
- Macronutrient nutrition, bioenergetics and alterations in energy balance
- The 'obesity epidemic' and nutrition science
- High protein (& lipid) diets vs. high carb diets & potential weight loss

XII. Nutrition & Exercise Science

Chapter Twelve

- Physical activity vs. exercise vs. fitness
- Nutrition, metabolism, bioenergetics & physical activity
- Optimal nutrition for exercise & athletics
- Ergogenic aids & other exercise supplements - A critical examination.

XIII. Food Safety

Chapter Thirteen

- Food- and water-borne enteric pathogens & food poisoning
- Chemistry and toxicological concerns of certain preservatives
- Inorganic and organic chemical contaminants
- Biotechnology and concerns of GMO foods
- Organic vs. inorganic foods
- Global nutrition & the potential role for biotechnology

XIV. Life Cycle Nutrition

Chapter Fifteen

- Energy drinks, metabolism and intake in childhood
- Nutrition science and longevity

5. Basis of Student Assessment (Weighting)

- (a) Assignments (combined value: 20% or 25% of final grade)
1. Detailed analysis and interpretation of a food label.....5%
 2. Three-day (*or week-long) food journal & analysis.....5% (*or 10%)
 3. Critical analysis of a popular diet or supplement5%
 4. Critical examination of a controversial topic in nutrition.....5%

The dates for submission of each assignment are:

Assignment 1. Friday, January 31st

Assignment 2. Friday, February 28th

Assignments 3 & 4. Thursday, April 9th

(b) Term Tests

Term Test #1

This test covers material from approximately the first third of the course. The delineation of material that you are responsible for will be provided about one week before the date of the test. This is a 50 min test that will be written in the lecture period on **Thursday, February 13th**. The results of this test contribute to **20%** of the final grade

Term Test #2

This test covers relevant material from approximately the second third of the course. The delineation of material that students are responsible for will be provided in class about one week before the date of the

exam. This is a 50 min test that will be written in the lecture period on **Tuesday, March 24th**. The results of this test contribute to **20%** of the final grade.

If a term test is missed due to illness or for any other justifiable reason (accompanied by appropriate documentation), the percentage value of the term test (20%) will be added to the value of the final exam.

(c) **Final Exams**

The final exam grade contributes a value of 40% to the final grade (or 35% if a week-long food journal assignment is submitted). While comprehensive in nature, some emphasis is on material following that covered previously on term tests, and on material that integrates the information from various sections of the course. **Attendance at the final exam is mandatory.** Appropriate documentation must accompany any explanation for absence if an incomplete grade (I grade) is warranted

The time and location of this 3 h final exam will be published by the College during the winter semester. *(please don't book air travel ahead of knowing the final exam date)*

6. Grading System

Standard Grading System (GPA)

Competency Based Grading System

7. Recommended Materials to Assist Students to Succeed Throughout the Course

Please refer to the required textbook, required course package and supplementary materials described above.

8. College Supports, Services and Policies



Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

A. GRADING SYSTEMS <http://camosun.ca/about/policies/index.html>

The following two grading systems are used at Camosun College:

1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at <http://camosun.ca/about/policies/index.html> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.

CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.
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Academic Honesty

Please become familiar with the new School of Arts & Science guide on academic honesty: <http://camosun.ca/learn/school/arts-science/images/Arts%20and%20Science%20Academic%20Honesty%20Guidelines.pdf>

Please Note:

Students may **not** use recording devices in the classroom without the prior permission of the instructor or the Centre for Accessible Learning. The instructor's permission is not required when the use of a recording device is sanctioned by the College's Centre for Accessible Learning in order to accommodate a student's disability, *and* when the instructor has been provided with an instructor notification letter which specifies the use of a recording device. Such recordings made in the classroom are for the student's personal use only, and distribution of recorded material is prohibited. Recordings made during the course would include statements, questions and comments made by students in the class, and these are not to be disseminated or repeated in any manner based on the recordings. Otherwise, please have cell phones turned off and put away while in lectures.

Please have cell phones turned off and put away while in lectures. Thank you.

Camosun College is a scent-free institution.

Please refrain from wearing scents. Thank you.