



## COURSE OUTLINE

This course examines fundamental aspects of nutrition in relation to optimal health. Topics include the nature and nutritional significance of dietary proteins, lipids (fats and oils), carbohydrates, vitamins and minerals, energy metabolism, dietary standards, food additives, and the relationship of nutrition to exercise, cardiovascular disease, obesity, and aging.

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

Ω Please note: the College electronically stores this outline for five (5) years only.  
It is **strongly recommended** you keep a copy of this outline with your academic records.  
You will need this outline for any future application/s for transfer credit/s to other colleges/universities.

### 1. Instructor Information

(a)	Instructor:	Jamie Doran, Ph.D.
(b)	Office Hours:	Monday, 1:30 to 2:20 pm Tuesday, 11:30 to 1:20 Wednesday, 1:30 pm to 2:20 pm Thursday, 1:30 pm to 2:20 pm Friday, 1:30 pm to 3:20 pm Everyone is welcome whenever my office door is open. Appointments may be made to meet at other times. Office hours will be extended prior to test dates as desired.
(c)	Location:	Room 350C, Fisher Building, Lansdowne Campus
(d)	Phone:	(250) 370-3441
(e)	Email:	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 available from the Lansdowne Campus Reserve Library for short-term loans.

(b) Other

### Course package

"Chem 117 - Introduction to Nutrition: Course Study Guides, Chapter Outlines & All the Practice Questions & Answers You Could Want to Make the Course Enjoyable, and for Easily & Optimally Using the Textbook, Nutrition - A Functional Approach. Second Canadian Edition, 2010." is also available from the Lansdowne Campus Book Store.

This course package is required material that will guide your reading and studies in a most efficient manner; effectively facilitating the growth your knowledge base in nutrition while helping you to feel confident in tackling the complex field of nutrition in an introductory, yet fairly substantial, manner. Each study guide includes an assigned reading list for the chapter, a listing of the most salient figures and tables, a list the relevant discipline-specific vocabulary, and a large set of practice questions in various formats (and, in most cases, their answers!).

### Supplementary materials

Articles from scientific and medical primary journals, review publications and newsletters, including opinion papers on controversial topics and 'myths' concerning nutrition, will provided as required or requested to maintain an up-to-date curriculum and to promote the critical thinking which must accompany consideration of the science of human nutrition. Nutrition is both a complex subject and a relatively new field of science in which the knowledge base is rapidly advancing. Hence, it is not uncommon for current reports in nutrition to provide incomplete, conflicting and/or controversial views.

## 4. Course Content and Schedule

Credits	3 credits
In-class workload	4 hours per week <ul style="list-style-type: none"><li>• Four 50-minute lectures per week.</li></ul>
Out-of-class workload	4 hours per week
Number of weeks	14 weeks
Pre-requisite courses	Chemistry 11 or Chem 100, <b>and</b> 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, 12:30 - 1:20 PM Fisher Building, Room F360
	Wednesday, 12:30 - 1:20 PM Fisher Building, Room F360
	Thursday, 12:30 - 1:20 PM Fisher Building, Room F360
	Friday, 12:30 - 1:20 PM Fisher Building, Room F322

## Lecture Outline

Below is a listing of the course curriculum as it unfolds in the course. The associated chapter of the textbook is indicated. Supplementary material and/or additional information may be used to support the textbook on select topics.

To benefit most from the course, students should prepare for lectures by reading the relevant subject materials in the text book in advance. The chapter study guides in the course package provide a very detailed reading guide to encourage reading ahead and to make your reading efficient and effective.

- I. Introduction - Nutrition & Health *Chapter One*
  - Nutrition and the scientific roots of good health
  - Classes of micro- and macro-nutrients
  - Nutrient intake in relation to energy intake
  - 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, provitamins, & 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
- XV. 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 & analyses.....5% (\*or 10%)
3. Critical analysis of a popular diet or supplement .....5%
4. Critical examination of a controversial topic in nutrition.....5%

The dates for submission of each assignment will be provided at appropriate times during the semester, in coordination with the coverage of relevant topics in lectures.

### (b) Term Tests (combined value: 40% of final grade)

#### 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 on **Friday, February 7<sup>th</sup>**. 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 you may be responsible for on this test will be provided in class about one week before the date of the exam. This is a 50 min test that will be written **Friday, March 14<sup>th</sup>**. The results of this test contribute to 20% of the final grade.

*If either or both of the term tests is missed due to illness or for any other justifiable reason (accompanied by appropriate documentation), a student may choose to write another version of that exam at a mutually agreeable time, or add the percentage value of that term exam (20%) to the percentage value of the final exam.*

**(c) Final Exam**

(value: 45% or 40% of final grade – please see below &amp; above)

The final exam grade contributes a value of 45% to the final grade (or 40% if a week-long food journal assignment is submitted). While somewhat comprehensive in nature, the emphasis is on material following on that within the realms covered previously on term tests, and on material that integrates the information from various sections of the course. The time and location of this 3 h final exam will be published by the College during the semester as indicated in the College Calendar.

**Attendance at the final exam is mandatory.** Appropriate documentation must accompany any explanation for absence if an incomplete grade (I grade) is warranted.

**6. Grading System****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	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

**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 E-1.5 at [camosun.ca](http://camosun.ca) for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
<b>I</b>	<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.
<b>IP</b>	<i>In progress:</i> A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. (For these courses a final grade will be assigned to either the 3 <sup>rd</sup> course attempt or at the point of course completion.)
<b>CW</b>	<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.

**7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course**

The study guides provided in the course package will prove highly valuable. Handout materials will supplement information provided in lecture and in the textbook. In addition, the web links provided in the text, at the corresponding website, and in lecture will broadly expand the learning resources which further understanding and appreciation of the curriculum of this course. Practice problems provided in the course package, the text, and the corresponding website will highlight all salient material and create comfort and confidence with the curriculum.

**LEARNING SUPPORT AND SERVICES FOR STUDENTS**

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services, or the College web site at [camosun.ca](http://camosun.ca).

## STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**.  
It is the student's responsibility to become familiar with the content of this policy.  
The policy is available in each School Administration Office, at Student Services,  
and the College web site in the Policy Section.

*Please Note:*

*Students may not use recording devices in the classroom without the prior permission of the instructor or DRC. The instructor's permission is not required when the use of a recording device is sanctioned by the College's Disabilities Resource Centre for Students 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. Recordings made in the classroom are for the student's personal use only, and distribution of recorded material is prohibited.*