

**University of Guelph
Ontario Agricultural College
Department of Food Science**

COURSE OUTLINE

Functional Foods & Nutraceuticals, NUTR/FOOD*4090

Winter 2017

Course description

This course examines the relation of functional foods and nutraceuticals (FFN) to food and drugs. The safety and efficacy of individual FFN products, and the regulatory issues that influence the development and commercialization of FFN in global markets are emphasized.

The course is co-operatively taught by the Department of Human Health and Nutritional Sciences and the Department of Food Science.

Credit value: 0.5 Pre-requisites: NUTR*3210, Co-requisites: none, Restrictions: none

Class Schedule and Location: Tuesday, Thursday 10:00-11:20, MACN105

Teaching team

Instructors:

- i) Prof. **Douglas Goff**, Food Science, Office: FS216, Extension x53878, Email dgoff@uoguelph.ca.
Office hours by appointment.

- ii) Dr. **Paul Spagnuolo**, Food Science, Office: FS118, Extension x53732, Email pspagnuo@uoguelph.ca. Office hours by appointment.

Graduate Teaching Assistants (exam marking):

Daniel Cervone, dcervone@uoguelph.ca
Sandra Clark, sclark16@uoguelph.ca
Katie Kim, gkim01@uoguelph.ca
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Learning goals and rationale

Upon completion of this course, students should:

1. Have a comprehensive understanding of what defines functional foods and nutraceuticals.
2. Understand the various research tools used to determine the efficacy of FFN.
3. Be aware of regulatory issues pertaining to functional foods and nutraceuticals, including an in-depth understanding of Health Claims and how they are made.
4. Understand issues related to the development and commercialization of FFN products.
5. Describe current state-of-the-knowledge with regards to the application of FFN for risk reduction of chronic diseases, maintaining and enhancing body image, performance enhancement and longevity.
6. Understand the role of selected FFN in health promotion and disease prevention and treatment.
7. Be aware of research needs in the continuing evolution of FFN.

Course Resources

There is no textbook for this course. Content will be presented through lectures and guest lectures, literature readings, group discussions, videos, etc. Literature readings will be required, but will be kept to the most appropriate articles for the topic. There is a CourseLink website for the course. All lecture slides and required readings will be posted ahead of class. You will benefit much more from in-class discussion if you have read the articles prior to class. The CourseLink website will also be very valuable as a learning tool if you contribute to on-line discussions.

Course Content

The following is a list of topics to be covered throughout this course. **Timelines are approximate and may change slightly to accommodate guest speakers and class based activities.**

Weeks	Topics	Readings
1 - 4	<p>Development and Commercialization of Functional Foods and Nutraceuticals</p> <ul style="list-style-type: none"> a. The history of FFN b. Regulations and Health Claims: Canadian and International Considerations c. Product development considerations (extraction and processing of nutraceuticals, development of consumer foods) d. Economics & Marketing e. Research Approaches to the study of FFN <p><i>Material to be covered on Midterm 1</i></p>	<p>Primary and review articles as posted on CourseLink website. (~2/week)</p>

Weeks	Topics	Readings
5-8	<p>Safety and Efficacy of Functional Foods and Nutraceutical Products for Risk Reduction of Chronic Diseases</p> <ul style="list-style-type: none"> a. CVD, Cancer, Diabetes, Osteoporosis b. Guest speakers & current topics, including soy proteins and isoflavones, omega 3 fatty acids, plant sterols, dietary fibre, bioactive peptides, pre- and probiotics, antioxidants, etc. <p><i>Material to be covered on Midterm 2</i></p>	Primary and review articles as posted on Courselink website. (~2/week)
9-12	<p>Safety and Efficacy of Functional Foods and Nutraceutical Products as Therapeutics in Chronic Disease</p> <ul style="list-style-type: none"> a. Placebo effect b. Review of online sources for FFN information c. Omega 3's, Garlic, CoQ10, Red Yeast Rice, Vitamins C and D, Ginseng, etc. 	Primary and review articles as posted on Courselink website. (~2/week)

Methods of Assessment

Students may select one of the following 2 options for assessment in this course. Option 1 includes 2 in class midterms plus the final exam. In option 2, students may chose to write an optional research paper and then the weighting of the 2 in class midterms and the final exam would be reduced.

Option #1: Two midterms and final exam

Form of Assessment	Weight of Assessment	Due Date of Assessment	Course Content /Activity	Learning Outcome Addressed
Midterm #1	30%	Thursday Feb 9 th , in class	Lecture & assigned readings	1-4, 7
Midterm #2	30%	Tuesday March 14 th , in class	Lecture & assigned readings	1-7
Comprehensive Final exam	40%	Monday April 10 th ,	Lecture & assigned readings	1-7

Form of Assessment	Weight of Assessment	Due Date of Assessment	Course Content /Activity	Learning Outcome Addressed
		2:30-4:30pm		

*Note: there will be **no make-up midterm** exams. Attendance at these lecture times is mandatory. In the event of legitimate absence due to illness or compassionate leave, the other midterm and final exam weighting will be adjusted to 40/60%.*

Option #2: Two midterms, Paper and final exam

Form of Assessment	Weight of Assessment	Due Date of Assessment	Course Content /Activity	Learning Outcome Addressed
Midterm #1	20%	Thursday Feb 9 th , in class	Lecture & assigned readings	1-4, 7
Midterm #2	20%	Tuesday March 14 th , in class	Lecture & assigned readings	1-7
Research Paper	30%	Topic approved by Jan 26 th via email, Paper due March 30 th in class & online.	Independent research	1-7
Comprehensive Final exam	30%	Monday April 10 th , 2:30-4:30pm	Lecture & assigned readings	1-7

*Note: there will be **no make-up midterm** exams. Attendance at these lecture times is mandatory. In the event of legitimate absence due to illness or compassionate leave, the other midterm and final exam weighting will be adjusted to 30/40%.*

Research paper details: The paper option provides an opportunity to expand your knowledge in a specific area of functional foods and nutraceuticals through a topic of your choice. You must have your topic approved by the instructor and you are encouraged to consult with the instructor as you decide on a topic. The topic must be independent of term papers you may have written for other courses (this will be verified). You will need time to gather information so give yourself plenty of time to learn and enjoy the process – *start working on it at the*

beginning of the semester! You must indicate your intent to complete this assignment and have your topic approved by Jan. 26th via email correspondence with Dr. Goff and Dr. Spagnuolo. **The final paper is due in class on Thursday March 30th**. A hard copy must be submitted in class as well as an electronic version submitted to the dropbox via courselink. Late papers will receive a penalty of 5% per day (including weekend days). Please comply with the following format requirements:

- 10-12 pages plus references and cover page.
- Double spaced, 12-point font.
- Reference style is your choice but must be consistent.
- Include a minimum of 5 primary research articles from peer-reviewed journals from within the last 6 years.
- Avoid internet references (use scientific articles instead).

Important Dates

- OPTIONAL PAPER topic approval – Thursday Jan 26th (via email)
- Midterm #1 – Thursday Feb 9th in class
- Midterm #2 – Tuesday March 14th in class
- OPTIONAL PAPER good copy - Thursday March 30th (hard copy in class **and** electronic copy via dropbox on courselink)
- Final Exam – Monday, April 10, 2:30-4:30 pm
- Last drop date without penalty (40th class day): Friday March 10th

Course and University Policies

When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact, and be prepared to provide supporting documentation. See the undergraduate calendar for information on regulations and procedures for Academic Consideration: [Undergraduate Calendar - Academic Consideration](#)

*Note: there will be **no make-up midterm exams**. Attendance at these lecture times is mandatory. In the event of legitimate absence due to illness or compassionate leave, the other midterm and final exam weighting will be adjusted to 40/60% (or 30/40% for those selecting to write a term paper).*

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing

services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities as soon as possible.

For more information, contact CSD at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: [Centre for Students with Disabilities](#)

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar: [Undergraduate Calendar - Academic Misconduct](#)

E-mail Communication

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

Drop Date

The last date to drop one-semester courses, without academic penalty, is the 40th class day. To confirm the actual date please see the schedule of dates in the Undergraduate Calendar. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar: [Undergraduate Calendar - Dropping Courses](#)

Copies of out-of-class assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Grading

Weighting of assessments will vary based on the option selected by each individual student, as outlined in 'Methods of Assessment' section.

*Note: there will be **no make-up midterm exams**. Attendance at these lecture times is mandatory. In the event of legitimate absence due to illness or compassionate leave, the other midterm and final exam weighting will be adjusted to 40/60% (or 30/40% for those selecting to write a term paper).*

Optional research papers are due **in class** on March 30th. An electronic backup copy must also be submitted to the dropbox on courselink. A 5% penalty will be applied per day late, including weekend days.

Campus Resources

The Academic Calendar is the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs:

[Academic Calendars](#)

If you are concerned about any aspect of your academic program:

- make an appointment with a program counsellor in your degree program. [B.Sc. Academic Advising](#) or [Program Counsellors](#)

If you are struggling to succeed academically:

- There are numerous academic resources offered by the Learning Commons including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills. You can also set up individualized appointments with a learning specialist. [The Learning Commons](#)

If you are struggling with personal or health issues:

- Counselling services offers individualized appointments to help students work through personal struggles that may be impacting their academic performance. [Counselling Services](#)
- Student Health Services is located on campus and is available to provide medical attention. [Student Health Services](#)
- For support related to stress and anxiety, besides Health Services and Counselling Services, Kathy Somers runs training workshops and one-on-one sessions related to stress management and high performance situations. [Stress Management and High Performance Clinic](#)

If you have a documented disability or think you may have a disability:

- The Centre for Students with Disabilities (CSD) can provide services and support for students with a documented learning or physical disability. They can also provide information about how to be tested for a learning disability. For more information, including how to register with the centre please see: [Centre for Students with Disabilities](#)