

**University of Guelph**  
**College of Biological Science**  
**Department of Human Health and Nutritional Sciences**  
**COURSE OUTLINE**  
**NUTR\*3330: Micronutrients, Phytochemicals and Health**  
**Fall 2016**

### **Course Description**

This course will explore the nutritional and biochemical roles/aspects of micronutrients and phytochemicals. The study of micronutrients will extend beyond the fundamentals of nutrition and will include relevance to human health and disease. The study of phytochemicals will encompass an overview to understand the concepts and processes involved, followed by the study of specific phytochemicals and their relation to human health and disease. Students have the option of gaining an in-depth understanding of a specific micronutrient or phytochemical of their choice through a research review paper. The relevant Canadian regulatory arena surrounding micronutrients and phytochemicals will also be discussed.

### **Instructor**

Alison M. Duncan, Ph.D., R.D.

Office: ANNU 347

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Office Hours: Anytime by appointment, see course website for scheduled office hours on days leading up to the midterm and final exams

### **Class Schedule**

Tuesday and Thursday from 1pm to 2:20pm in THRN1200.

### **Learning Goals**

Upon completion of this course, students should:

1. Have an extensive understanding of the nutritional and biochemical aspects of vitamins and minerals, as well as their relevance to human health and disease.
2. Have an understanding of what constitutes a phytochemical.
3. Have an extensive understanding of selected phytochemicals covered in class; how they work and their relevance to human health and disease.
4. Be aware of the Canadian regulatory environment as it pertains to micronutrients and phytochemicals.
5. Have experienced the process of critically and thoroughly investigating, discussing and reporting on a specific area of micronutrient or phytochemical nutrition through an individual or group research paper (if optional research review paper is completed).
6. Have improved scientific writing skills (if optional research review paper is completed).

## Course Resources

This class will use the online Courselink system where notes and lectures will be posted each week. There is no required text for this class. However, if you are looking for a detailed nutrition textbook as a potential resource (primarily for micronutrients, less on phytochemicals), I would recommend: Shils et al. Modern Nutrition in Health and Disease, 10<sup>th</sup> edition. You may choose to purchase this book as part of your personal library. There are no copies available in the bookstore, however you are free to order this book at any time. If you would like to take a look at the book, there is 1 hard copy on 2-hour reserve at the library under this class and 1 e-copy is available through ARES or Primo (library catalogue). When you log into ARES for any of your reserve material the e-item will be listed or you can search it in Primo ([https://www.lib.uoguelph.ca/resources/course\\_reserves\\_&\\_e\\_learning/](https://www.lib.uoguelph.ca/resources/course_reserves_&_e_learning/)).

## Course Content

### Tentative Class Schedule:

Week	Class Dates	Topics Covered
1	Thurs. September 8	Course introduction
2	Tues. September 13 Thurs. September 15	Micronutrients introduction, thiamin, riboflavin, niacin
3	Tues. September 20 Thurs. September 22	Biotin, pantothenic acid, vitamin B <sub>6</sub> , vitamin B <sub>12</sub>
4	Tues. September 27 Thurs. September 29	Folate, choline, bariatric surgery and micronutrients
5	Tues. October 4 Thurs. October 6	Canadian micronutrient-related regulations, antioxidant micronutrients, vitamin C
6	Tues. October 11; NO CLASSES Thurs. October 13	Tues Oct 11: no classes Vitamin D, calcium
7	Tues. October 18 Thurs. October 20	Vitamin A, vitamin K, sodium, iron <b>Midterm Thurs. Oct 20 (in class)</b>
8	Tues. October 25 Thurs. October 27	Phytochemicals introduction, Flavonoids
9	Tues. November 1 Thurs. November 3	Phytosterols, Chocolate flavonoids
10	Tues. November 8 Thurs. November 10	Canadian phytochemical-related regulations, Phytoestrogens
11	Tues. November 15 Thurs. November 17	Glucosinolates Sulfur-containing phytochemicals
12	Tues. November 22 Thurs November 24	Anthocyanins, Resveratrol
13	Tues. November 29 Thurs. December 1	Ginseng and other selected herbals, course wrap-up <b><u>Optional Research Review Paper DUE</u></b> <b><u>Thurs. December 1</u></b>

**Research Review Paper NOTES:**

- This is an optional component of the course.
- This is your opportunity to expand your knowledge in a specific area of micronutrients or phytochemicals through a topic of your choice within micronutrients or phytochemicals.
- You can do this individually or in a group of up to 3 people (yourself and 1-2 others).
- For groups, all group members will receive the same grade for the paper.
- You must have your topic approved by the instructor and you are encouraged to consult with the instructor as you decide on a topic.
- Your research review paper should be an enjoyable and informative process, so this means you should work on it throughout the semester. You may need time to gather information so give yourself plenty of time to learn and enjoy the process.
- Your research review paper is due by **Thursday December 1, 2016**. Please email me a copy in WORD with the file name NUTR333paper-LastNames. Late papers will receive a penalty of 5% per day (including weekend days).
- Please comply with the following format requirements:
  - 8-10 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.
  - Avoid internet references (use scientific articles).

**Methods of Assessment**

Form of Assessment	Weight of Assessment	Weight of Assessment	Date of Assessment	Course Content /Activity	Learning Outcome Addressed
	OPTION 1	OPTION 2			
Midterm Exam	30%	45%	Thurs. Oct. 20, 2016 In class 1pm to 2:20pm	Lectures up until end of class before midterm	1, 4
Comprehensive Final Exam (weighted 75% post-midterm)	40%	55%	Mon. Dec. 12, 2016 8:30am to 10:30aam Location TBD	All lectures	1, 2, 3, 4
Optional Research Review Paper	30%	--	Due Thurs Dec. 1, 2016	Independent research	5

## **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. See the undergraduate calendar for information on regulations and procedures for [Academic Consideration](#).

### **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 Student Accessibility Services (formerly the Centre for Students with Disabilities) as soon as possible.

For more information, contact [Student Accessibility Services](#) at 519-824-4120 ext. 56208 or email [csd@uoguelph.ca](mailto:csd@uoguelph.ca).

### **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.

### **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 40<sup>th</sup> 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](#).

### **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**

If you choose to do the optional research review paper, please submit electronically to the course instructor. Late penalties of 5% per day will apply.

If you are absent for a class, you are expected to make up missed material on your own. Please seek input from fellow classmates on any material you have missed. You can use the class discussion board to interact with your classmates.

## Campus Resources

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

Make an appointment with a [Program Counsellor](#) in your degree program.

### **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.

### **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. [Student Health Services](#) is located on campus and is available to provide medical attention.

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.

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

[Student Accessibility Services](#) (SAS) formerly Centre for Students with Disabilities 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.