



# NUTR\*3330 Micronutrients, Phytochemicals and Health

Fall 2022  
Section(s): C01

Department of Human Health and Nutritional Sciences  
Credit Weight: 0.50  
Version 1.00 - September 02, 2022

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## 1 Course Details

### 1.1 Calendar Description

The course emphasizes the biochemical basis for the dietary essentiality of vitamins and minerals. The course extends the fundamentals of nutrition to include conditional essentiality of micronutrients, biochemical individuality and the use of micronutrient supplementation to promote human and animal health. Both plant and animal sources of nutrients are discussed.

**Pre-Requisites:** NUTR\*3210

### 1.2 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. The relevant Canadian regulatory arena surrounding micronutrients and phytochemicals will also be discussed. **This course will be delivered in a face-to-face format. Lectures will not be recorded.**

### 1.3 Timetable

Tuesdays and Thursdays 1:00pm -2:20 pm in MACN 105

### 1.4 Final Exam

Date and time TBD.

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## 2 Instructional Support

## 2.1 Instructional Support Team

<b>Instructor:</b>	Alison Duncan PhD, RD, FDC
<b>Email:</b>	amduncan@uoguelph.ca
<b>Office:</b>	ANNU347 (office) and ANNU302 (lab)
<b>Office Hours:</b>	Office hours can be any time by appointment. In addition, there will be frequent office hours set before each exam.

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## 3 Learning Resources

### 3.1 Required Resources

#### **Course Resources (Website)**

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.

### 3.2 Campus Resources

#### **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.

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## 4 Learning Outcomes

### 4.1 Course Learning Outcomes

By the end of this course, you should be able to:

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.
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## 5 Teaching and Learning Activities

### 5.1 Lecture

**Topics:**

**Tentative Class Schedule (precise content for each class may change):**

<b>Week</b>	<b>Class Number</b>	<b>Class Dates</b>	<b>Topics Covered</b>
1	1	Thurs. September 8	Course introduction, micronutrients introduction
2	2	Tues. September 13	B vitamins overview, thiamin, riboflavin, niacin
	3	Thurs. September 15	Biotin and pantothenic acid
3	4	Tues. September 20	Vitamin B <sub>6</sub> and vitamin B <sub>12</sub>
	5	Thurs. September 22	Folate and choline
4	6	Tues. September 27	<b>Exam 1 (Classes 1-5)</b>
	7	Thurs. September 29	Antioxidant micronutrients, Vitamin C
5	8	Tues. October 4	Vitamin A and vitamin K
	9	Thurs. October 6	Vitamin D and calcium
6	no class	Tues. October 11	Tues Oct. 11: no class
	10	Thurs. October 13	Bariatric surgery and micronutrients
7	11	Tues. October 18	<b>Exam 2 (Classes 7-10)</b>
	12	Thurs. October 20	Iron, Canadian micronutrient-related regulations
8	13	Tues. October 25	Phytochemicals introduction and

	14	Thurs. October 27	flavonoids Flavonoids
9	15	Tues. November 1	Chocolate phytochemicals
	16	Thurs. November 3	Phytosterols
10	17	Tues. November 8	<b>Exam 3 (classes 12-15)</b>
	18	Thurs. November 10	Canadian phytochemical regulations
11	19	Tues. November 15	Phytoestrogens
	20	Thurs. November 17	Glucosinolates
12	21	Tues. November 22	Sulfur-containing phytochemicals
	22	Thurs November 24	Resveratrol
13	23	Tues. November 29	Anthocyanins
	24	Thurs. December 1	Selected herbals, Course wrap-up

## 6 Assessments

### 6.1 Marking Schemes & Distributions

Name	Scheme A (%)
Exam 1 or Exam 2 or Exam 3 (highest grade)	30
Exam 1 or Exam 2 or Exam 3 (second highest grade)	30
Final Exam	40
Total	100

## 6.2 Assessment Details

### Exam 1 (30%)

**Date:** Tue, Sep 27, 1:00 PM - 2:20 PM, MACN 105

**Learning Outcome:** 1

This exam will cover content from classes 1-5. Your course grade will be determined from your two highest grades from Exams 1, 2 and 3 (60%) and your final exam grade (40%).

### Exam 2 (30%)

**Date:** Tue, Oct 18, 1:00 PM - 2:20 PM, MACN 105

**Learning Outcome:** 1

This exam will cover content from classes 7-10. Your course grade will be determined from your two highest grades from Exams 1, 2 and 3 (60%) and your final exam grade (40%).

### Exam 3 (30%)

**Date:** Tue, Nov 8, 1:00 PM - 2:20 PM, MACN 105

**Learning Outcome:** 1, 2, 3, 4

This exam will cover content from classes 12-15. Your course grade will be determined from your two highest grades from Exams 1, 2 and 3 (60%) and your final exam grade (40%).

### Final Exam (40%)

**Date:** Wed, Dec 14, 2:30 PM - 4:30 PM, TBD

**Learning Outcome:** 1, 2, 3, 4

This exam will cover content from all classes but will be weighted 15% from classes 1-5 (Exam 1); 15% from classes 7-10 (Exam 2), 15% from classes 12-15 (Exam 3), 5% from questions that include all class material; and 50% from classes 16 and 18-24. Your course grade will be determined from your two highest grades from Exams 1, 2 and 3 (60%) and your final exam grade (40%).

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## 7 Course Statements

### 7.1 Grading

If you are absent for a class, you are expected to make up missed material on your own. The classes will not be recorded. Please seek input from fellow classmates on any material you have missed. You can also use the class discussion board to interact with your classmates. Your course grade will be determined from your two highest grades from Exams 1, 2 and 3 (60%) and your final exam grade (40%).

## 8 Department of Human Health and Nutritional Sciences Statements

### 8.1 Academic Advisors

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](#)

## 8.2 Academic Support

If you are struggling to succeed academically:

- Learning Commons: 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. <http://www.learningcommons.uoguelph.ca/>
- Science Commons: Located in the library, the Science Commons provides support for physics, mathematic/statistics, and chemistry. Details on their hours of operations can be found at: <http://www.lib.uoguelph.ca/get-assistance/studying/chemistry-physics-help> and <http://www.lib.uoguelph.ca/get-assistance/studying/math-stats-help>

## 8.3 Wellness

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. <https://www.uoguelph.ca/counselling/>
- Student Health Services is located on campus and is available to provide medical attention. <https://www.uoguelph.ca/studenthealthservices/clinic>
- 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. <http://www.selfregulationskills.ca/>

## 8.4 Personal information

Personal information is collected under the authority of the University of Guelph Act (1964), and in accordance with Ontario's Freedom of Information and Protection of Privacy Act (FIPPA) <http://www.e-laws.gov.on.ca/index.html>. This information is used by University officials in order to carry out their authorized academic and administrative responsibilities and also to establish a relationship for alumni and development purposes.

For more information regarding the Collection, Use and Disclosure of Personal Information policies please see the Undergraduate Calendar.

(<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/intro/index.shtml>)

## 8.5 Course Offering Information Disclaimer

Please note that course delivery format (face-to-face vs online) is subject to change up to the first-class day depending on requirements placed on the University and its employees by public health bodies, and local, provincial and federal governments. Any changes to course format prior to the first class will be posted on WebAdvisor/Student Planning as they become available.

## 9 University Statements

### 9.1 Email Communication

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

### 9.2 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. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

<https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml>

### 9.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg->



regchg.shtml

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

## 9.4 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.

## 9.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to make a booking at least 14 days in advance, and no later than November 1 (fall), March 1 (winter) or July 1 (summer). Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time.

For Guelph students, information can be found on the SAS website  
<https://www.uoguelph.ca/sas>

For Ridgetown students, information can be found on the Ridgetown SAS website  
<https://www.ridgetownc.com/services/accessibilityservices.cfm>

## 9.6 Academic Integrity

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 encourages academic integrity. 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.

Undergraduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

## 9.7 Recording of Materials

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

## 9.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>

## 9.9 Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

## 9.10 Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g.. final exam or major assignment).

## 9.11 Covid-19 Safety Protocols

For information on current safety protocols, follow these links:

- <https://news.uoguelph.ca/return-to-campus/how-u-of-g-is-preparing-for-your->

safe-return/

- <https://news.uoguelph.ca/return-to-campus/spaces/#ClassroomSpaces>

Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives.

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