

# 2016-2017 Graduate Calendar

The information published in this Graduate Calendar outlines the rules, regulations, curricula, programs and fees for the 2016-2017 academic years, including the Summer Semester 2016, Fall Semester 2016 and the Winter Semester 2017.

For your convenience the Graduate Calendar is available in PDF format.

If you wish to link to the Graduate Calendar please refer to the Linking Guidelines.

The University is a full member of:

- The Association of Universities and Colleges of Canada

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## Disclaimer

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The Office of Graduate Studies has attempted to ensure the accuracy of this on-line Graduate Calendar. However, the publication of information in this document does not bind the university to the provision of courses, programs, schedules of studies, fees, or facilities as listed herein.

## Limitations

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The University of Guelph reserves the right to change without notice any information contained in this calendar, including any rule or regulation pertaining to the standards for admission to, the requirements for the continuation of study in, and the requirements for the granting of degrees or diplomas in any or all of its programs.

The university will not be liable for any interruption in, or cancellation of, any academic activities as set forth in this calendar and related information where such interruption is caused by fire, strike, lock-out, inability to procure materials or trades, restrictive laws or governmental regulations, actions taken by the faculty, staff or students of the university or by others, civil unrest or disobedience, Public Health Emergencies, or any other cause of any kind beyond the reasonable control of the university.

The University of Guelph reaffirms section 1 of the Ontario Human Rights Code, 1981, which prohibits discrimination on the grounds of race, ancestry, place of origin, colour, ethnic origin, citizenship, creed, sex, sexual orientation, handicap, age, marital status or family status.

The university encourages applications from women, aboriginal peoples, visible minorities, persons with disabilities, and members of other under-represented groups.

# Introduction

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## Collection, Use and Disclosure of Personal Information

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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/DBLaws/Statutes/English/90f31\\_e.htm](http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/90f31_e.htm). 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. Certain personal information is disclosed to external agencies, including the Ontario Universities Application Centre, the Ministry of Training, Colleges and Universities, and Statistics Canada, for statistical and planning purposes, and is disclosed to other individuals or organizations in accordance with the Office of Registrarial Services Departmental Policy on the Release of Student Information. For details on the use and disclosure of this information call the Office of Registrarial Services at the University at (519) 824-4120 or see <https://www.uoguelph.ca/registrar/>

## Statistics Canada - Notification of Disclosure

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For further information, please see Statistics Canada's web site at <http://www.statcan.gc.ca> and Section XIV Statistics Canada.

## Address for University Communication

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Depending on the nature and timing of the communication, the University may use one of these addresses to communicate with students. Students are, therefore, responsible for checking all of the following on a regular basis:

### Email Address

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The University issued email address is considered an official means of communication with the student and will be used for correspondence from the University. Students are responsible for monitoring their University-issued email account regularly.

### Home Address

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Students are responsible for maintaining a current mailing address with the University. Address changes can be made, in writing, through the Office of Graduate Studies.

## Name Changes

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The University of Guelph is committed to the integrity of its student records, therefore, each student is required to provide either on application for admission or on personal data forms required for registration, his/her complete, legal name. Any requests to change a name, by means of alteration, deletion, substitution or addition, must be accompanied by appropriate supporting documentation.

## Student Confidentiality and Release of Student Information Policy Excerpt

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The University undertakes to protect the privacy of each student and the confidentiality of his or her record. To this end the University shall refuse to disclose personal information to any person other than the individual to whom the information relates where disclosure would constitute an unjustified invasion of the personal privacy of that person or of any other individual. All members of the University community must respect the confidential nature of the student information which they acquire in the course of their work.

Complete policy at <http://www.uoguelph.ca/policies>.



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## Human Health and Nutritional Sciences

The Human Health and Nutritional Sciences Graduate Program offers MSc degrees by thesis, MSc degrees by course work and project, and PhD degrees. The three fields are listed below.

- **Biomechanics**
- **Nutrition, Exercise and Metabolism**
- **Nutritional and Nutraceutical Sciences**

See the [department website](#) for additional information.

### Administrative Staff

#### Chair

Lawrence L. Spriet (354 Animal Science/Nutrition Bldg., Ext. 53745)

lspriet@uoguelph.ca

#### Associate Chair

Coral L. Murrant (350 Animal Science/Nutrition Bldg., Ext. 56173)

cmurrant@uoguelph.ca

#### Graduate Program Coordinator

David C. Wright (334 Animal Science/Nutrition Bldg., Ext. 56751)

dcwright@uoguelph.ca

#### Assistant Graduate Program Coordinator for MSc by Coursework and Project Program

Alison M. Duncan (347 Animal Science/Nutrition Bldg., Ext. 53416)

amduncan@uoguelph.ca

#### Graduate Program Assistant

Andra Williams (352 Animal Science/Nutrition Bldg., Ext. 56356)

cbshhnsgrad@uoguelph.ca

#### CBS Graduate Admissions Secretary

Karen White (3479 Science Complex, Ext. 52730)

cbsgrad@uoguelph.ca

### Graduate Faculty

#### Marica Bakovic

BSc, MSc Belgrade, PhD Alberta - Professor

#### Leah R. Bent

BSc, MSc Guelph, PhD British Columbia - Associate Professor

#### William J. Bettger

BS, PhD Missouri - Associate Professor

#### Stephen Brown

BHK, MHK Windsor, PhD Waterloo - Associate Professor

#### Jamie Burr

BA Western, MSc, PhD York - Assistant Professor

#### Andrea Clark

BSc Loughborough, PhD Calgary - Assistant Professor, Human Health and Nutritional Sciences, University of Guelph

#### Alison M. Duncan

BASc Guelph, MSc Toronto, PhD Minnesota - Professor

#### David J. Dyck

BSc, MSc, PhD Guelph - Professor

#### Graham P. Holloway

BA McMaster, MSc Waterloo, PhD Guelph - Associate Professor

#### Lorraine C. Jadeski

BSc Guelph, MSc Waterloo, PhD Western - Associate Professor

#### James B. Kirkland

BSc, PhD Guelph - Associate Professor

#### David W.L. Ma

BSc, PhD Alberta - Associate Professor

#### Kelly A. Meckling

BSc Calgary, PhD Toronto - Professor

#### Philip J. Millar

BSc, MSc, PhD McMaster - Assistant Professor

#### Coral L. Murrant

BSc, PhD Guelph - Associate Professor

#### David M. Mutch

BSc Queen's, PhD Lausanne - Associate Professor

#### Genevieve Newton

Doctor of Chiropractic Nat'l U of Health Sciences (Chicago), MSc, PhD Guelph - Assistant Professor

#### Kerry Ritchie

BSc, PhD Guelph - Assistant Professor

#### Lindsay E. Robinson

BSc Acadia, PhD Alberta - Associate Professor

#### Jeremy Simpson

January 31, 2017

BSc, Guelph, PhD Queen's - Associate Professor

#### Lawrence L. Spriet

BSc Waterloo, MSc York, PhD McMaster - Professor and Chair

#### John Z. Srbely

BSc Toronto, DC Canadian Memorial Chiropractic College, PhD Guelph - Assistant Professor

#### Lori A. Vallis

BSc, MA Ottawa, PhD Waterloo - Associate Professor

#### Amanda Wright

BSc, PhD Guelph - Associate Professor

#### David Wright

BPE Calgary, MSc Arizona State, PhD Ball State - Associate Professor

#### John L. Zettel

BS Waterloo, MSc, PhD Toronto - Assistant Professor

### Associated Graduate Faculty

#### Bruce Holub

BSc Guelph, MSc, PhD Toronto - University Professor Emeritus, Human Health and Nutritional Sciences, University of Guelph

#### Geoffrey Power

BKin, MSc Memorial, PhD Western - Contractually Limited Faculty, Human Health and Nutritional Sciences, University of Guelph

#### Krista Power

BSc Memorial, MSc, PhD Toronto - Research Scientist, Guelph Food Research Centre, Agriculture and Agri-Food Canada

#### Dan Randath

BSc Toronto, MSc, PhD West Indies - Manager/Clinical Research Scientist (Human Nutrition), Guelph Food Research Centre, Agriculture and Agri-Food Canada

### MSc Program

The MSc program is offered in: 1) biomechanics; 2) nutrition, exercise and metabolism; and 3) nutritional and nutraceutical sciences. The focus is on physical activity and diet as powerful lifestyle determinants of human health. The interaction between genetics and environmental factors determines human health and lifestyle is a major component of our environment.

Our graduate programs offer advanced experiential learning experiences in the broad areas of nutritional and nutraceutical sciences, general and exercise physiology and biomechanics within the focus of lifestyle, genetics and human health. Within these broad fields, the Department of Human Health and Nutritional Sciences addresses the issues at the level of the individual, not community or populations. The research efforts are focused on understanding the basic underlying biological aspects of health, which are further applied to understanding aging, neurological/sensory disorders and osteoarthritis, and chronic diseases such as cancer, cardiovascular disease, obesity, and type II diabetes

The Department offers programs of study leading to an MSc by thesis and an MSc by coursework and project. Within the MSc thesis program students must complete a minimum of 1.5 graduate credits and defend an acceptable thesis which comprises an account of the student's research. Within the MSc coursework program students must complete a minimum of 4.0 graduate credits which include credits for research experience.

### Admission Requirements

To be considered, applicants must meet the requirements of a four-year honours science degree with a minimum 75% average during the final two years or 4 semesters of undergraduate study. Applicants should have completed a course in statistics. Each applicant must obtain the support of a faculty member willing to serve as his/her advisor.

Admission may be granted in September, January or May. Completed applications should be uploaded at least one full semester (four months) before the expected date of admission. Applications from international students should be uploaded at least eight months prior to the expected date of admission.

All components of the application, including transcript(s), graduate certificate(s), grading scale(s), language test results, assessment forms, a statement of interest and the name of the faculty advisor must be uploaded no later than two months after an application is submitted through the OUAC portal. Applications that are incomplete after this time period will be closed.

### Admission Process

Graduate student applications to programs in the College of Biological Science are handled by the Office of the Associate Dean, Research (ADR). Before submitting an application, applicants are strongly encouraged to view the "[Before you Apply](#)" and "[Admission Process](#)" webpages on the ADR Future Student's site.

Complete application submission instructions may also be found on the [Office of Graduate Studies](#) webpage or in the [Graduate Calendar](#).

### Degree Requirements

Students enrol in one of two study options: 1) thesis, or 2) course work and major research project.

## Thesis

Students must complete and defend an acceptable thesis which comprises a scientifically defensible account of the student's research on a particular, well-defined research problem or hypothesis. Such research should begin with the practical expectation that it could be completed and the thesis defended in not more than 5 semesters. Paramount to the notion of acceptability of the thesis is its quality with respect to problem identification, the approach used to address the problem, and the evaluation of the results.

In addition they must successfully complete courses totalling not fewer than 1.5 graduate credits. The graduate credits of course work will consist of:

a) at least one of:

HHNS*6040	[0.50]	Research Fronts in Nutritional and Nutraceutical Sciences
HHNS*6500	[0.50]	Cardiovascular and Respiratory Physiology
HHNS*6700	[0.50]	Nutrition, Exercise and Metabolism
HHNS*6800	[0.50]	Research Frontiers in Integrative Biomechanics and Neurophysiology

b) at least 1.0 credits of electives as determined with the Advisory Committee

## Course Work and Major Research Project (MRP)

Students must complete at least 4.0 graduate credits as follows:

HHNS*6010	[0.50]	Seminar in Human Health and Nutritional Sciences
HHNS*6320	[0.50]	Advances in Human Health and Nutritional Sciences Research

at least one of:

HHNS*6910	[0.50]	Basic Research Techniques and Processes
HHNS*6920	[0.50]	Applied Research Techniques and Processes
HHNS*6930	[0.50]	Research Project

at least one of:

HHNS*6040	[0.50]	Research Fronts in Nutritional and Nutraceutical Sciences
HHNS*6500	[0.50]	Cardiovascular and Respiratory Physiology
HHNS*6700	[0.50]	Nutrition, Exercise and Metabolism
HHNS*6800	[0.50]	Research Frontiers in Integrative Biomechanics and Neurophysiology

at least 1.0 to 2.0 graduate credits of electives.

## PhD Program

The PhD program is offered in: 1) biomechanics; 2) nutrition, exercise and metabolism; and 3) nutritional and nutraceutical sciences. The focus is on physical activity and diet as powerful lifestyle determinants of human health. The interaction between genetics and environmental factors determines human health and lifestyle is a major component of our environment.

Our graduate programs offer advanced experiential learning experiences in the broad areas of nutritional and nutraceutical sciences, general and exercise physiology and biomechanics within the focus of lifestyle, genetics and human health. Within these broad fields, the Department of Human Health and Nutritional Sciences addresses the issues at the level of the individual, not community or populations. The research efforts are focused on understanding the basic underlying biological aspects of health, which are further applied to understanding aging, neurological/sensory disorders and osteoarthritis, and chronic diseases such as cancer, cardiovascular disease, obesity, and type II diabetes.

## Admission Requirements

Applicants must have a recognized Master's degree in a related field obtained with a minimum academic standing of 80% in their postgraduate studies, and the endorsement of a potential thesis advisor. Applicants should have completed a course in statistics. Under exceptional circumstances admission directly to a PhD program with an appropriate honours degree alone, or transfer from MSc to PhD program without completing the MSc thesis requirements, is also possible.

Admission may be granted in September, January or May. Completed applications should be uploaded at least one full semester (four months) before the expected date of admission. Applications from international students should be uploaded at least eight months prior to the expected date of admission.

Each applicant must obtain the support of a faculty member willing to serve as his/her advisor.

All components of the application, including transcript(s), graduate certificate(s), grading scale(s), language test results, assessment forms, a statement of interest and the name of the faculty advisor must be uploaded no later than two months after an application is submitted through the OUAC portal. Applications that are incomplete after this time period will be closed.

## Admission Process

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Complete application instructions may also be found on the [Office of Graduate Studies](#) webpage or in the [Graduate Calendar](#).

## Degree Requirements

The major part of a student's time will be devoted to research in fulfilment of the dissertation requirement. Course work would be established through discussion with the student's Advisory Committee.

PhD students will become candidates for the PhD degree upon completion of a qualifying examination, which must be conducted not later than the fifth semester of the PhD program. The examination will be primarily research focused.

## Thesis Requirements

Submission and defence of an acceptable dissertation complete the requirements for a PhD. An acceptable dissertation comprises a report of the candidate's research on a particular and well-defined research problem or hypothesis. It should represent a significant contribution to knowledge in that field. Emphasis is placed on the quality of the work judged by the expression of mature scholarship and critical judgment in the dissertation. Dissertation approval implies that it could be published in reputable, refereed journals in its field.

## Interdepartmental Programs

Students may wish to participate in the interdepartmental programs in Bioinformatics or Biophysics

## Collaborative Specializations

Students may wish to participate in the collaborative specializations in Neuroscience or Toxicology

## Courses

<b>HHNS*6000 Students Promoting Awareness of Research Knowledge S,F,W [0.25]</b>
This course will explore research communication through practical experience. The course will be part of the SPARK program in which students write, edit and coordinate a variety of news publications that highlight University of Guelph research activities for a wide range of audiences.
<i>Restriction(s):</i> Limited to HHNS MSc course work and project students only. Instructor consent required.
<i>Department(s):</i> Department of Human Health and Nutritional Sciences
<b>HHNS*6010 Seminar in Human Health and Nutritional Sciences S [0.50]</b>
Students will develop their scientific communication skills by translating a specific body of knowledge on a chosen topic into a seminar. The class will also explore scientific process-oriented concepts and issues such as effective scientific communication and dissemination of results.
<i>Restriction(s):</i> Limited to HHNS MSc course work and project students only.
<i>Department(s):</i> Department of Human Health and Nutritional Sciences
<b>HHNS*6040 Research Fronts in Nutritional and Nutraceutical Sciences F [0.50]</b>
Building on an information base in nutrition, biochemistry and physiology, the course comprises selected research topics pertaining to the importance of nutrition as a determinant of health throughout the life span. Distinction will be drawn between the metabolic basis of nutrient essentiality and the health protectant effects of nutraceuticals.
<i>Department(s):</i> Department of Human Health and Nutritional Sciences
<b>HHNS*6130 Advanced Skeletal Muscle Metabolism in Humans W [0.50]</b>
This course examines how the energy provision pathways in human skeletal muscle and associated organs meet the energy demands of the muscle cell during a variety of metabolically demanding situations.
<i>Department(s):</i> Department of Human Health and Nutritional Sciences
<b>HHNS*6320 Advances in Human Health and Nutritional Sciences Research S,F,W [0.50]</b>
This course provides the student with an opportunity to study a topic of choice and involves literature research on a chosen topic. The course may stand alone (MSc thesis and PhD students) or provide the background information for an experimental approach to the topic (MSc course work and project students).
<i>Department(s):</i> Department of Human Health and Nutritional Sciences
<b>HHNS*6400 Functional Foods and Nutraceuticals F [0.50]</b>
This course considers the relation of nutraceuticals, functional foods, designer foods, medical foods and food additives to foods and drugs. The course emphasizes the development and commercialization of nutraceuticals.
<i>Department(s):</i> Department of Human Health and Nutritional Sciences
<b>HHNS*6410 Applied Functional Foods and Nutraceuticals W [1.00]</b>
This course prepares students to develop an innovative product or service from conceptualization to market entry considering regulatory, product development, safety/efficacy and market readiness issues. The course applies and integrates the concepts defined in HHNS*6400
<i>Department(s):</i> Department of Human Health and Nutritional Sciences



**HHNS\*6440 Nutrition, Gene Expression and Cell Signalling W [0.50]**

This course emphasizes the role nutrients play as modulators of gene expression at the molecular level. The mechanisms by which nutrients modulate gene expression through specific cell signalling cascades are examined. (offered annually)

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6500 Cardiovascular and Respiratory Physiology F [0.50]**

This course will use both review articles and the primary literature to build a broad base of understanding of the cardiovascular and respiratory systems as well as explore current research in specific areas in this knowledge paradigm. Further, this course will build research skills through by strengthening critical analysis skills and both oral and written communication skills through learning about the cardiovascular and respiratory system and how they integrate.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6700 Nutrition, Exercise and Metabolism F [0.50]**

A discussion of recent concepts in the relationships among nutrition, exercise and metabolism. Information from the molecular to the whole-body level will be presented with a focus on understanding nutrition and exercise in the human. Emphasis is placed on the development and testing of experimental hypotheses in these areas of research.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6710 Advanced Topics in Nutrition and Exercise F [0.50]**

Advanced topics will be presented to establish an in-depth understanding of current investigations in nutrition and exercise. Based on the integrated understanding of nutrition and exercise developed in HHNS\*6700, the focus of this course will be to develop the student's ability to independently analyze original research investigations.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6800 Research Frontiers in Integrative Biomechanics and Neurophysiology F [0.50]**

This course will provide students with a breadth of knowledge and understanding across the research frontiers pursued by the integrative biomechanics and neurophysiology group. Students will be given opportunity to practice and improve oral and written communication skills and provide constructive feedback to their peers. Additionally, this class will engage students in dialogue around topics pertinent to designing and conducting successful experiments such as hypothesis generation and ethical and practical considerations.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6810 Research Methods in Integrative Biomechanics and Neurophysiology I F [0.50]**

This course develops a comprehensive understanding of methods and analysis related to research in biomechanics & neuroscience. Critical evaluation and application of basic signal to noise processing and electromyography is a priority. The course uses labs, assignments, and critical review of primary literature articles to develop a strong research foundation. Scientific writing and oral communication skills are emphasized via written reports and presentations, and numeracy throughout the course in data and lab assignments.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6820 Research Methods in Integrative Biomechanics and Neurophysiology II W [0.50]**

This course develops a comprehensive understanding of methods and analysis related to research in biomechanics & neuroscience. Critical evaluation and application of 3D kinematics and programming/modelling is a priority. The course uses labs, assignments, and critical review of primary literature articles to develop a strong research foundation. Scientific writing and oral communication skills are emphasized via written reports and presentations, and numeracy throughout the course in data and lab assignments.

*Prerequisite(s):* HHNS\*6810

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6910 Basic Research Techniques and Processes S,F,W [0.50]**

Working with a faculty advisor, students will gain experience in basic aspects of scientific research. This will be accomplished through experience of one or more components of the scientific method in a laboratory setting. Objective outcomes will be evaluated and will include documentation of the experience in a written report.

*Restriction(s):* Restricted to HHNS MSc. course work and project students. Instructor consent required.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6920 Applied Research Techniques and Processes S,F,W [0.50]**

Under the supervision of a faculty advisor, students will gain practical experience in discipline-specific aspects of research. This will be accomplished through experience in a pre-arranged practicum in an applied setting. Objective outcomes will be evaluated and will include documentation of the experience in a written report.

*Restriction(s):* Restricted to HHNS MSc. course work and project students. Instructor consent required.

*Department(s):* Department of Human Health and Nutritional Sciences

**HHNS\*6930 Research Project S,F,W [0.50]**

Under the supervision of a faculty advisor and building on knowledge gained from Basic or Applied Research Techniques and Processes, students will carry out a specific research project to its completion. Results will be documented in a written report and communicated through a scientific poster.

*Prerequisite(s):* HHNS\*6910 or HHNS\*6920

*Restriction(s):* Restricted to HHNS MSc. course work and project students. Instructor consent required.

*Department(s):* Department of Human Health and Nutritional Sciences