2004-2006 Graduate Calendar

The information published in this Graduate Calendar outlines the rules, regulations, curricula, programs and fees for the 2004-2006 academic years, including the Summer Semester 2005, the Fall Semester 2005 and the Winter Semester 2006.

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

The Office of Graduate Program Services 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

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, 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.

Table of Contents

Human Biology and Nutritional Sciences

The Human Biology and Nutritional Sciences Graduate Program offers MSc degrees by thesis, MSc degrees by course work and project, and PhD degrees. The three areas of emphasis and the faculty associated with those areas are:

- **Biodynamics** -- Bent, Dickey, Jadeski, Lindinger, Murrant, Vallis
- **Nutrition, Exercise and Metabolism** -- Bakovic, Bonen, Dyck, Graham, Robinson, Spriet
- **Nutritional and Nutraceutical Sciences** -- Bakovic, Bettger, Duncan, Kirkland, Meckling, Robinson, Woodward, Wright

Interdepartmental programs are available for students wishing to specialize in aquaculture or toxicology.

Admission Requirements

Admission to all graduate programs in the Department of Human Health and Nutritional Sciences will normally be granted in September. Completed applications should arrive in the department by April 1 of the year in which the student wishes to begin study. Applications from international students, especially those applying for financial support, should arrive by December 1 of the year before the expected date of admission.

Administrative Staff

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Terry E. Graham (354 Animal Science/Nutrition Bldg., Ext. 56168)
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Graduate Faculty

Marica Bakovic
BSc, MSc Belgrade, PhD Alberta - Assistant Professor

Leah R. Bent
BSc, MSc Guelph, PhD British Columbia - Assistant Professor

William J. Bettger
BS, PhD Missouri - Associate Professor

Arend Bonen
BA Western, MS, PhD Illinois - Professor

James P. Dickey
BSc, MSc Waterloo, PhD Queen's - Assistant Professor

Alison M. Duncan
BASc Guelph, MSc Toronto, PhD Minnesota - Assistant Professor

David J. Dyck
BSc, MSc, PhD Guelph - Associate Professor

Terry E. Graham
BA & BPHE, MSc, PhD Queen's - Professor and Chair

Lorraine Jadeski
BSc Guelph, MSc Waterloo, PhD Western - Assistant Professor

James B. Kirkland
BSc, PhD Guelph - Associate Professor

Michael I. Lindinger
BSc Victoria, MSc, PhD McMaster - Associate Professor

Kelly A. Meckling
BSc Calgary, PhD Toronto - Associate Professor

Coral L. Murrant
BSc, PhD Guelph - Assistant Professor

Lindsay E. Robinson
BSc Acadia, PhD Alberta - Assistant Professor

Lawrence L. Spriet
BSc Waterloo, MSc York, PhD McMaster - Professor

Lori A. Vallis
BSc, MA Ottawa, PhD Waterloo - Assistant Professor

William D.H. Woodward
BSc, MSc British Columbia, PhD Sheffield - Professor

Amanda Wright
BSc, PhD Guelph - Assistant Professor

MSc Program

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. Applicants are urged to identify and contact a faculty member who is willing to serve as their advisor.

Degree Requirements

MSc by 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:

HBNS*6020	0.5	Biodynamics
HBNS*6700	0.5	Nutrition, Exercise and Metabolism
HBNS*6040	0.5	Research Fronts in Nutritional and Nutraceutical Sciences

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

MSc by Course Work and Project

Students must complete at least 4.0 graduate credits as follows:

HBNS*6010	0.5	Seminar in Human Biology and Nutritional Sciences
HBNS*6320	0.5	Advances in Human Biology and Nutritional Sciences Research

at least one of:

HBNS*6910	0.5	Basic Research Techniques and Processes
HBNS*6920	0.5	Applied Research Techniques and Processes
HBNS*6930	0.5	Research Project

at least one of:

HBNS*6020	0.5	Biodynamics
HBNS*6700	0.5	Nutrition, Exercise and Metabolism
HBNS*6040	0.5	Research Fronts in Nutritional and Nutraceutical Sciences

at least 1.0 to 2.0 graduate credits of electives.

PhD Program

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.

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

Toxicology MSc/PhD Collaborative Program

The Department of Human Health and Nutritional Sciences participates in the MSc/PhD program in Toxicology. Professor Kirkland is a member of the Toxicology Interdepartmental Group. This faculty member's research and teaching expertise includes aspects of toxicology; he may serve as advisor for MSc and PhD students. Please consult the Toxicology listing for a detailed description of the MSc/PhD collaborative program.

Biophysics Interdepartmental Group (BIG)

Several faculty members in the Department of Human Health and Nutritional Sciences are members of the Biophysics Interdepartmental Group, which offers MSc and PhD programs in biophysics. Students admitted to and enrolled in the biophysics program and advised by a member of the graduate faculty in the Department of Human Health and Nutritional Sciences will be accommodated in the facilities of the department but are subject to the regulations of the biophysics program. Members of the graduate faculty in the Department of Human Health and Nutritional Sciences who are members of the Biophysics Interdepartmental Group are permitted to advise MSc and PhD students in biophysics. These faculty members include J.P. Dickey and M. Lindinger. Please consult the Biophysics listing for a detailed description of the graduate programs offered by the Biophysics Interdepartmental Group.

Courses

HBNS*6010 Seminar in Human Biology and Nutritional Sciences S [0.50]

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.

Restriction(s): Limited to HBNS MSc course work and project students only

HBNS*6020 Biodynamics F [0.50]

This course considers the integrated activities of the human organism, spanning from the cellular level to the whole body. The purpose is to further develop concepts that comprise a foundation for understanding neuromuscular and musculoskeletal systems.

HBNS*6030 Applied Ergonomics U [0.50]

Reviews selected topics in ergonomics from a multidisciplinary perspective with special reference to understanding the scientific basis of associated data gathering techniques and to practicing the necessary skills. This course is also a graduate course offering in the Department of Psychology

HBNS*6040 Research Fronts in Nutritional and Nutraceutical Sciences F [0.50]

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.

HBNS*6130 Advanced Skeletal Muscle Metabolism in Humans W [0.50]

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.

HBNS*6320 Advances in Human Biology and Nutritional Sciences Research S,F,W [0.50]

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).

HBNS*6400 Functional Foods and Nutraceuticals F [0.50]

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.

HBNS*6410 Applied Functional Foods and Nutraceuticals W [1.00]

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 Functional Foods and Nutraceuticals (HBNS*6400).

HBNS*6440 Nutrition, Gene Expression and Cell Signalling (offered odd-numbered years) 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.

HBNS*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-animal 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.

HBNS*6710 Advanced Topics in Nutrition and Exercise W [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 HBNS*6700, the focus of this course will be to develop the student's ability to independently analyze original research investigations.

HBNS*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. (Instructor's signature required.)

HBNS*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. (Instructor's signature required.)

HBNS*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. (Instructor's signature required.)

Prerequisite(s): HBNS*6910 or HBNS*6920

Applied Human Nutrition

Programs of study leading to the MSc and PhD degree are available through the Department of Family Relations and Applied Nutrition.

Animal Nutrition

Programs of study leading to the MSc and PhD degree in animal nutrition are available in the Department of Animal and Poultry Science.