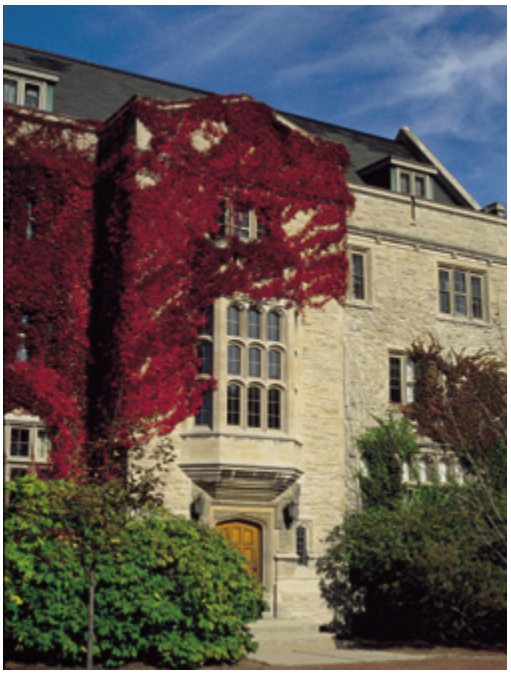
2005-2006 Undergraduate Calendar



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

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

If you wish to link to the Undergraduate 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

University of Guelph 2005

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The University 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 publication of information in this calendar does not bind the University to the provision of courses, programs, schedules of studies, or facilities as listed herein.

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Table of Contents

II. The University

History

The University of Guelph was established in 1964, when its founding colleges--the Ontario Agricultural College, the Ontario Veterinary College and Macdonald Institute--joined with a new college of arts and science. Today, the University of Guelph comprises six colleges--College of Arts, College of Biological Science, College of Physical and Engineering Science, College of Social and Applied Human Sciences, the Ontario Agricultural College, and the Ontario Veterinary College.

The University of Guelph is renowned in Canada and around the world as a research-intensive and learner-centred institution and for its commitment to open learning, internationalism and collaboration.

Students may pursue more than 80 undergraduate and 45 graduate degree programs spanning the natural and physical sciences, social sciences and humanities. Faculty at the University of Guelph have won more prestigious 3M Fellow teaching awards than any comparably-sized university in Canada. Our students are no less accomplished: 99.8 percent of first-year students enter with an average of at least 75 percent.

A total of 16,905 students attend Guelph, including 15,880 full- and part-time undergraduates, 208 full- and part-time undergraduates at the University of Guelph-Humber, and 1,859 full- and part-time graduate students. The University of Guelph is a highly residential community, with approximately 5,260 students living in campus residences.

With over a $100 million in annual research funding, the University of Guelph is one of the country's top research institutions. Among its researchers, Guelph numbers 19 Fellows of the Royal Society of Canada. A 30-acre research park adjacent to the campus is home to a growing number of research-intensive industries.

An enhanced partnership reached in 1997 between the University of Guelph and the Ontario Ministry of Agriculture and Food (OMAF) relocated OMAF employees to an 86,000-square-foot research complex adjacent to campus, and made the University responsible for Ontario's agricultural colleges at Alfred, Kemptville and Ridgetown, the Horticultural Research Institute of Ontario and OMAF's Laboratory Services. With its enhanced partnership, its research park and the Guelph Food Technology Centre--an independent laboratory on campus for food processing research and product development--the University of Guelph is the hub of a rapidly growing cluster of agri-food education, research and laboratory services in Canada.

Guelph's commitment to internationalism is reflected in several ways. Guelph attracts 700 international students from 100 countries and maintains 58 study abroad programs (52 exchange and 6 semester abroad) with 30 countries. There are about 450 University of Guelph students studying abroad. The University of Guelph has 60 public- and private-sector partners in 30 countries, and participates in Canadian International Development Agency (CIDA) projects worth a total of $16.5 million around the world. The University offers more than 150 distance degree credit courses to more than 13,500 course enrolments. Our graduates are Guelph's ambassadors to the world with more than 71,000 alumni in 130 countries.

University of Guelph-Humber

The University of Guelph-Humber is a joint venture developed by Humber College Institute of Technology and Advanced Learning and the University of Guelph. Located in Toronto on Humber College Institute of Technology and Advanced Learning's North Campus, it offers a range of academic programs leading to a university honours degree and a college diploma in four years.

For more information about the University of Guelph-Humber, see the web site at http://www.guelphhumber.ca.

Academic Organization

- College of Arts
  - School of Fine Art and Music
  - School of Languages and Literatures
  - School of English and Theatre Studies
- College of Biological Science
- College of Physical and Engineering Science
  - School of Engineering
- College of Social and Applied Human Sciences
  - School of Hospitality and Tourism Management
- Ontario Agricultural College
  - Collège d'Alfred
  - Kemptville College
  - Ridgetown College
  - School of Environmental Design and Rural Development
- Ontario Veterinary College
- Faculty of Environmental Sciences
- Faculty of Management
- Faculty of Graduate Studies
- Biophysics Interdepartmental Group
- Centre for Families, Work and Well-Being
- Centre for Food Security
- Centre for Genetic Improvement of Livestock
- Centre for International Programs
- Health and Performance Centre
- Centre for Land and Water Stewardship
- Centre for New Students
- Centre for Toxicology
- Colonel K.L. Campbell Centre for the Study of Animal Welfare
- George Morris Centre
- Guelph Food Technology Centre
- Guelph Turfgrass Institute
- Horticultural Research Institute of Ontario
- Independent Study/OAC Access
- Institute for Environmental Policy and Stewardship
- Institute of Ichthyology
- Landscape Research Group
- Office of Open Learning
- Office of Research
- Teaching Support Services
- Four inter-university research programs:
  - Guelph Waterloo Centre for Research in Biotechnology
  - Guelph Waterloo Centre for Graduate Work in Physics
  - Guelph Waterloo Centre for Research in Chemistry
  - Guelph McMaster Graduate Program in Philosophy

Learning Objectives

Arising from the Aims and Objectives Report, the following Objectives were approved by the Senate of the University in 1987:

1. Literacy
2. Numeracy
3. Sense of Historical Development
4. Global Understanding
5. Moral Maturity
6. Aesthetic Maturity
7. Understanding of Forms of Inquiry
8. Depth and Breadth of Understanding
9. Independence of Thought
10. Love of Learning

They are a set of objectives described in terms of the desired characteristics of educated graduates, and are used in part to guide educators in their development of courses and programs. Their descriptions are as follows:

1. Literacy

Literacy is the base on which all else is predicated. The ability to read and write and, in general, to communicate properly is a fundamental intellectual tool. With it, students can learn to think clearly and to some purpose. Without it, they cannot analyze properly nor develop an independence of thought. Literacy affords a means of access to the raw material upon which the critical or creative intelligence is to be exercised. It affords a means of communication, of shaping ideas and concepts, of selecting between different or competing formulations. It is a means of instructing others.

The most basic experience in literacy given to the student should be the writing of a short expository paper, or the oral presentation of an informational report, on a prescribed topic or on a topic chosen from a restricted list.

At the next level, the student should be required to write a paper (or give a seminar), critical and analytical in its intent, on a topic of the student's devising. The ability to devise a topic, to frame its bounds, is at the same time an aspect of understanding of first order importance.

At the highest level, there should be produced a paper, in an appropriate style, that analyzes, synthesizes or argues from a hypothesis and itself generates hypotheses; that produces knowledge, insight, or understanding in the reader and manifests it on the part of the writer; that shows a breadth of understanding in drawing out implications and making connections between remote features of the domain; that, in short, demonstrates a love of learning and an intelligent creativity. This requirement may readily be met in existing senior honours paper courses and the like.

Over the course of an undergraduate education, the level of difficulty of the material which the student can read, comprehend, and utilize should increase. One way of securing this

might be to encourage, in each discipline program where they do not now exist, reading courses requiring independent work at the 4000 level.

In general, the ability to read and comprehend materials of the highest difficulty is enhanced in semester-long research paper courses and in reading courses. Such courses contribute also to independence of thought and to depth and breadth of understanding.

In its broadest sense, the objective of literacy implies that it is desirable that the student have skill in another language, so as to be able to comprehend material of the appropriate level of sophistication in that language.

2. Numeracy

For the purposes of this discussion, numeracy may be defined as the ability to use mathematics at a level and in a manner appropriate to good citizenship and to vocational fitness. Mathematics deals with quantity and form, with measurement, structures, and relations, and encompasses a richer intellectual domain than just the utilitarian skills of numerical computation. It is as a mode of thinking, no less than as a collection of useful techniques, that it justifies its place in any well-rounded curriculum.

Numeracy, in the sense adopted here, is an essential attribute of the informed and responsible citizen. A correct understanding of the proper use of numbers is necessary in a culture in which information routinely comes in numeric form and significant decisions of social policy often have quantification at their base. Without the ability to comprehend the use of quantitative data, and to detect instances of misuse, we may have to forego opportunities for independent judgment.

Numeracy, more generally, enforces an accuracy and precision of procedure and thought that is valuable to all educated persons. As a mode of conceptualization of thought, it should be part of the mental apparatus of all graduating students. While a grasp of the nature and principles of mathematical forms of inquiry is essential to an understanding of scientific thought, it can be of benefit in other areas of intellectual activity. Opportunities for fostering numeracy exist in more disciplines than those traditionally requiring a substantial knowledge of mathematics. A recognition that numeracy, in association with literacy, forms the foundation of most if not all of the other learning objectives, should result in greater exploitation of those opportunities than in their avoidance.

3. Sense of Historical Development

All disciplines have a history, an understanding of which contributes to an understanding of the place each has in contemporary society. No discipline is self-sufficient, and no discipline is autonomous. "Historical development" should not be narrowly construed to mean only the history of the discipline within its own limits, but efforts should be made to connect developments in the discipline to wider coeval social conditions. Students may thereby be endowed with a sense of the fundamental relativity of knowledge and understanding at any given time.

This objective comports also a sense of the continuity of change (and, indeed, of discontinuities), over time.

This objective may facilitate the acceptance, on the part of students, of intellectual ambiguity or uncertainty; such acceptance is a mark of depth of understanding.

4. Global Understanding

Global understanding may be associated with "Sense of Historical Development". It can be described as comprehension of the variety of political, religious, cultural, geographical, biological, environmental, and historical forces in the shaping of nature and the human condition. It conveys to the student an understanding of the ways in which specific cultural or geographical or other circumstances condition the differences between nations or peoples, and an understanding of the place of his or her discipline in the international setting. Global understanding may be enhanced by a sense of historical perspective, by breadth of understanding, and by independence of thought. In its turn it may itself contribute to these.

5. Moral Maturity

Moral maturity is marked by depth and consistency of moral judgment; by recognition that any moral judgment may be fallible; that moral judgment is complex, in that moral principles, if they are to be applied to a specific case, may need to be interpreted. Moral maturity is a requirement in the person who is to apply a body of knowledge or a skill to the solution of a problem, or to the understanding of a situation, if the knowledge is not to remain abstract and the skill potential unrealized.

Attainment of this objective is probably best realized by appropriate consideration of moral issues in context, as they arise in the course of study. In this way, a moral perspective may be shown to be inherently important to study of a body of material, and not merely something supplementary to it (guidelines for conducting ethical discussion in the classroom have been written by the Ethics Research Group in the Department of Philosophy).

Scope for demonstration of moral maturity can be provided in seminars and other assignments, if problems in the moral issues associated with a subject are set for consideration alongside problems in content and process.

6. Aesthetic Maturity

Aesthetic maturity may be described as a quality of the critical response to some object, natural or artificial, external to the self. Or it may be a process of creation and development of the self. In the former case, aesthetic maturity may be attained by a sufficient exposure, not necessarily in courses alone, to works of art (inclusive of music, literature, and drama) and to the critical traditions concerning them. Such maturity may also be directed at aesthetic valuing of features of the natural environment.

In the latter case, attainment of the quality will require an active involvement in the work of creation itself. A different order of aesthetic maturity may be attained by practice of that form of manipulation and recreation of the original object known as criticism (as distinct from appreciation).

Viewed this way, aesthetic maturity has a certain resemblance to both independence of thought and depth of understanding, in requiring an active creativity.

Aesthetic maturity need not be divorced from the specific character of individual disciplines. By possession and exercise of aesthetic maturity, students may be brought to appreciate the order, elegance, and harmony not only of the subject matter, but also of the procedures, of the discipline.

7. Understanding of Forms of Inquiry

Inquiry, the search for truth, information, knowledge and understanding, follows a methodology based upon systematic study, reflection, intuition and innate creativity. Inquiry involves resolving an identified problem, collecting relevant information, evaluating the information and observing relationships in order to reach a conclusion. The student is the active inquirer and must be able to undertake the process independently. Scientific method represents a form of inquiry concerned with hypotheses development, data collection, analyses and interpretation. Just as an understanding of scientific inquiry is necessary for the educated citizen functioning in the midst of the technologies of the contemporary world, so too an appreciation of other modes of inquiry is an essential characteristic of an educated citizen. Graduates should be familiar with the modes of inquiry utilized, for example, by historians, by philosophers and by scholars concerned with the various fields of creative expression.

As outcomes of this objective, students will understand the strengths and limitations of the various forms of inquiry, and the cultural, intellectual and historic impact of these forms. The student will be able to describe similarities and differences between the inquiry methods of the physical scientist, the biological scientist, the social scientist and the scholar of the humanities.

8. Depth and Breadth of Understanding

Breadth of understanding is an expression of the ability to operate across disciplinary boundaries in a coherent and productive way, with principles drawn from different disciplines. Depth of understanding depends upon mastery of a body of knowledge, but it is not to be confused with knowledge, and is not necessarily commensurate with the number of courses taken in a subject.

Depth and breadth of understanding depend upon, and themselves contribute to, independence of thought; they contribute also to a love of learning. Possession of a historical perspective may be essential to a broad and deep understanding of a subject.

At the lowest level of experience, in courses introductory to a subject, students might be shown how sets of facts may be related to others both laterally and vertically (or hierarchically). The outcome of this might be simply consciousness, on the part of the student, of the possibilities of understanding, as distinct from simply knowing.

The next higher level moves from demonstration to the student of interrelationships to the development of the student's own ability to create interrelations. The experience provided will develop a creative imaginativeness skillfully exercised on a body of material mastered in some detail. But the experience, like that provided for independence of thought, goes beyond display of erudition, and requires alert curiosity and a refusal to be content with mere assemblage of data. At this level, the student should be expected to integrate knowledge and modes of interpretation and comprehension from different disciplines so as to generate a new understanding. The highest level takes the student to the ability to deal in abstractions, to generate abstractions.

In general, depth and breadth of understanding are characterized by the ability to recognize the implications of the information at hand and to put it into a broader context; and by the ability to draw upon different disciplines to provide a clearer and deeper understanding of the discipline with which the student is immediately concerned.

These outcomes might be assessed in a piece of written work such as an independent research paper, in the design of an experiment, in the identification and solution of a problem, or in a work of aesthetic creation.

9. Independence of Thought

At the lowest level, students are shown the possibilities of independent thinking, by an instructor who, in the classroom and elsewhere, challenges orthodoxies and criticizes received opinions. The experience provided is that of imitation or emulation of a role model. At this level, the outcome might be no more than a receptivity, on the part of the student, to critical thinking and an openness to reasoned skepticism about the authority of the expert.

At a higher level, students become actively engaged in learning and thinking. At this level, they should be given the opportunity, in seminars, tutorials, or structured small group discussions, to offer their own challenges. The bases for such challenges may be unformed, and so the challenges themselves will be open to challenge. As students become more independent in thought, they are better able to combine ideas and to generate new ideas.

At the highest level, independence of thought is a manifestation of love of learning, and it may contribute to a sense of self worth and of well-being. At this level, opportunities are provided for self-directed learning. One accomplishment may be the ability to ask the right kinds of questions, rather than the ability always to have answers.

10. Love of Learning

Love of learning is perhaps the quality that activates all other qualities that are the focus of learning objectives. Its expression is not easily separable from demonstration of other virtues. Thus, the true lover of learning will demonstrate both independence of thought and depth of understanding. As a consequence, setting an objective for love of learning comports also setting an objective for other qualities as well. But love of learning is not exhausted by, for example, independence of thought.

Love of learning may be reflected in, or expressed in terms of, intellectual curiosity; the ability (as in independence of thought) to ask useful kinds of questions (rather than the ability always to have answers); the ability to see far reaching implications; the ability to make connections between disparate topics; energy and passion in the pursuit of knowledge and understanding; dissatisfaction with simply accumulating facts or data; and critical ability.

Testing and instruction must minimize rote learning, and, so far as possible, give scope for the exercise of individual patterns of learning and individual interests.

Love of learning may be impeded by the demands of frequent evaluation of students' performance. The time frames imposed at an institutional level, to provide an organizational framework for the university experience, may also impair love of learning.

Love of learning may best be enhanced by the provision of opportunities for the student's personal involvement in learning. Such opportunities are perhaps best furnished in independent research projects initiated by the student. In such autonomous, but supervised, study the student can not only engage with the conflicting views of published authorities but also see in action, close at hand, the supervisor's own love of learning.

In courses of formal instruction, the use of team teaching might help to encourage a student's own love of learning, especially if members of the teaching team take an appropriate role as "students", and if true dialogue is developed between the teachers.

Mission Statement

The University of Guelph is a research-intensive, learner-centred university. Its core value is the pursuit of truth. Its aim is to serve society and to enhance the quality of life through scholarship. Both in its research and in its teaching programs, the University is committed to a global perspective.

The University offers a wide range of excellent programs, both in theoretical and applied, disciplinary and interdisciplinary, undergraduate and graduate, in the arts, humanities, social sciences, natural sciences, as well as professional fields. Among these, it recognizes agriculture and veterinary medicine as areas of special responsibility.

The University attracts students, faculty, and staff of the highest quality. It is animated by a spirit of free and open enquiry, collaboration, and mutual respect. It asserts the fundamental equality of all human beings and is committed to creating for all members of its community, an environment that is hospitable, safe, supportive, equitable, pleasurable, and above all, intellectually challenging.

The University of Guelph is determined to put the learner at the centre of all it does, recognizing that research and teaching are intimately linked and that learning is a life-long commitment. The University eagerly promotes collaboration among undergraduates, graduate students, faculty, staff, and alumni, as well as with our local and international community, other educational institutions, government and business.

The University of Guelph is committed to the highest standards of pedagogy, to the education and well-being of the whole person, to meeting the needs of all learners in a purposefully diverse community, to the pursuit of its articulated learning objectives, to rigorous self-assessment, critical inquiry, and active learning. The University of Guelph educates students for life and work in a rapidly changing world.

The University of Guelph invites public scrutiny of the fulfillment of its mission, especially by the people of Ontario, to whom it is accountable.