**AGRICULTURE (AGR)**

**AGR*1110  Introduction to the Agri-Food Systems**  
*Fall Only*  
*(LEC: 6)*  
*[1.00]*  
This introductory course provides an overview of Canadian and global agri-food systems. Students will be introduced to many different facets of agriculture, including primary production (conventional and organic) of commodity, mid-value and high-value crops, and livestock. Students will explore the agri-food system by tracing consumer end-products back to primary production. Modern, industrial agri-food systems as well as subsistence farming will be discussed. The course incorporates an experiential learning component in which students will explore a new agri-food opportunity for Ontario by designing and assessing the value chain.  
**Restriction(s):** AGR*1100. AGR*1250. Restricted to students in BAH.FARE, BSC(AGR), Minor in Agriculture  
**Department(s):** Department of Plant Agriculture, Department of Animal Biosciences  
**Location(s):** Guelph

**AGR*2050  Agroecology**  
*Winter Only*  
*(LEC: 3)*  
*[0.50]*  
This course considers the interactions of all important biophysical, technical and socioeconomic components of farming systems and examines these systems as the fundamental units of study. Mineral cycles, energy transformations, biological processes and socioeconomic relationships are analyzed as a whole in an interdisciplinary fashion.  
**Prerequisite(s):** (AGR*1110 or AGR*2150), (BIOL*1050 or BIOL*1070)  
**Restriction(s):** CROP*2110  
**Department(s):** Department of Plant Agriculture, Department of Animal Biosciences  
**Location(s):** Guelph

**AGR*2150  Plant Agriculture for International Development**  
*Fall Only*  
*(LEC: 3)*  
*[0.50]*  
This course will provide students interested in international development with an introductory mechanistic understanding of the biology underlying crop production in developing nations. Emphasis will be placed on simple, low-cost solutions from biology that have the potential to aid efforts in international development. This course is accessible to science and non-science students.  
**Prerequisite(s):** 4.00 credits  
**Restriction(s):** AGR*2470  
**Department(s):** Department of Plant Agriculture  
**Location(s):** Guelph

**AGR*2320  Soils in Agroecosystems**  
*Fall Only*  
*(LEC: 3, LAB: 2)*  
*[0.50]*  
This course is an introduction to soil resources with emphasis on management practices that will sustain the productivity of these resources and enhance the quality of the ecosystems of which they are a part. Students will develop a management plan for a farm that will take into account the roles of geological, geomorphological, biological, climatic and temporal factors on the formation, properties and uses of soils. The management plans will be placed in the broader context of provincial policies related to soil, air and water resources and local zoning regulations.  
**Prerequisite(s):** 2.50 credits  
**Restriction(s):** ENV*S*2060 or SOIL*S*2010  
**Department(s):** School of Environmental Sciences  
**Location(s):** Guelph

**AGR*2350  Animal Production Systems, Health and Industry**  
*Fall Only*  
*(LEC: 3, LAB: 3)*  
*[0.50]*  
This course is designed to introduce the student to the Agri-food system in Ontario, nationally and internationally. All major animal industries will be covered starting from the grocery store and working back to the primary producer. Companion and exotic animals will also be covered. Topics include food, health and wellness (domestic animals and human), nutrition, housing, genetics, reproduction, husbandry practices and processing. The course includes laboratories and animal production unit tours.  
**Prerequisite(s):** BIOL*1030 or (2 of BIOL*1050, BIOL*1070, BIOL*1080, BIOL*1090)  
**Department(s):** Department of Animal Biosciences  
**Location(s):** Guelph

**AGR*2470  Introduction to Plant Agriculture**  
*Fall Only*  
*(LEC: 3, LAB: 3)*  
*[0.50]*  
The basic principles of plant morphology, nutrition, growth and development will be related to where and how agriculturally significant plants are grown. Agroecosystems and farming systems will be considered as frameworks for crop production analyses. The course uses examples from temperate, sub-tropical and tropical crops and cropping systems. Labs include problem-solving exercises in the context of plant production.  
**Prerequisite(s):** BIOL*1050 or BIOL*1070  
**Restriction(s):** AGR*2150  
**Department(s):** Department of Plant Agriculture  
**Location(s):** Guelph

**AGR*2500  Field Course in International Agriculture**  
*Winter Only*  
*(LEC: 3)*  
*[0.50]*  
This course introduces students to a wide range of tropical and subtropical agricultural production systems and issues. The course is comprised of a weekly 3 hour evening lecture and a two week field trip to Costa Rica where students will visit corporate and individual farms, university and government research stations. The field trip occurs during Reading Week in February. This course must be recorded as part of your Winter course selection. The cost of the course is approximately $3200.00 per student, in addition to tuition and compulsory fees. Students must identify their interest in taking this course by contacting the instructor before the October course selection period of the previous year. In order to confirm reservations for travel arrangements a deposit of $300 in the form of a cheque, made payable to the University of Guelph, must be submitted to the Department of Plant Agriculture Undergraduate Program Assistant in the Crop Science building, room 306 by November. Some financial support for travel may be available.  
**Prerequisite(s):** (AGR*1110 or AGR*1250) or registration in International Development  
**Restriction(s):** Registration in BSC(AGR) or BA.ID or Minor in Agriculture  
**Instructor consent required.**  
**Department(s):** Department of Plant Agriculture  
**Location(s):** Guelph
AGR*3010  Special Studies in Agricultural Science I  Summer, Fall, and Winter (LEC: 3)  [0.50]
A special study option that enables undergraduate students in semesters 5 through 8 to undertake specific projects in agricultural sciences. The topic of the special study will be determined in consultation with an faculty member and the individual student. Students are responsible for making appropriate arrangements with faculty at the departmental and/or college level prior to registration for the course.
Prerequisite(s): 10.00 credits
Restriction(s): Instructor consent required.
Department(s): Department of Plant Agriculture
Location(s): Guelph

AGR*3200  Computing for Bioscientists  Winter Only (LEC: 5)  [0.50]
This course focuses on computational aspects of analytical techniques for biological data. Topics covered include, how to operate a computer efficiently when using biological data, types of biological data used in animal biosciences, how to prepare biological data for analysis, programming skills for bio-data organization, manipulation and problem solving, bio-data visualization, and computational aspects of data modelling.
Restriction(s): Restricted to students in BSCH.ABIO, BSAG.AGRS, BSAG.ANSC, BBRM.EQM.
Department(s): Dean's Office, Ontario Agricultural College
Location(s): Guelph

AGR*3450  Research Methods in Agricultural Science  Fall Only (LEC: 3, LAB: 2)  [0.50]
This course provides students with an opportunity to enhance their understanding of the principles and processes of agricultural research. The course will provide students with a foundation in critical thinking, experimental design and data analysis that will be applicable to independent research projects and graduate studies. Students will also explore the practical requirements and limitations of scientific research. Laboratory and field safety, animal care, intellectual property and research ethics will be reviewed. Students will be required to practice both oral presentation and writing skills as core components of their evaluation.
Prerequisite(s): Completion of 7.50 credits including (1 of GEOG*2460, STAT*2040, STAT*2060, STAT*2080)
Restriction(s): Enrollment in the BSC(AGR), BBRM, BSAG.ABIO, BSC.PLSC or Minor in Agriculture.
Department(s): Department of Plant Agriculture, Department of Animal Biosciences
Location(s): Guelph

AGR*4010  Special Studies in Agricultural Science II  Summer, Fall, and Winter (LEC: 3)  [0.50]
This special study option enables undergraduate students in semesters 5 through 8 to undertake specific projects in agricultural science. The topic of the special study will be determined in consultation with a faculty member and the individual student. Students are responsible for making appropriate arrangements with faculty member prior to registration for the course.
Prerequisite(s): 15.00 credits
Restriction(s): Instructor consent required.
Department(s): Department of Animal Biosciences
Location(s): Guelph

AGR*4020  Precision Techniques for Plant Agriculture  Fall Only (LEC: 3)  [0.50]
This course will be a survey of principles and applications of technologies supporting precision farming and planning for natural resource data management. Topics will include Global positioning system (GPS), yield monitoring and mapping, remote sensing, geographic information system (GIS), variable rate technologies (VRT), data layering, Internet information access, and computer software for management.
Prerequisite(s): AGR*2470, STAT*2040, (BIOL*1050 or BIOL*1070)
Department(s): Department of Plant Agriculture
Location(s): Guelph

AGR*4450  Research Project I  Summer, Fall, and Winter  (LAB: 12)  [1.00]
This course provides for the independent study of a current topic in agricultural or environmental science designed to encourage senior undergraduates to conduct research. The course includes participation in meetings organized by the coordinator, work with a faculty advisor to develop a research project, formulate hypotheses, design and carry out preliminary experiments to test the hypotheses. Students will carry out independent library research, begin experimental work, prepare a written report and make a presentation to other students in the course of the research plan and preliminary results. Students must make arrangements with both the faculty supervisor and the course coordinator at least one semester before starting the course. This course will normally be followed by AGR*4460 to provide 2 semesters to complete the research project.
Prerequisite(s): 10.00 credits
Restriction(s): Permission of the course coordinator (contingent on the availability and agreement of a faculty advisor), BSC.Agr or BSC or BBRM, 70% cumulative average.
Department(s): Dean's Office, Ontario Agricultural College
Location(s): Guelph

AGR*4460  Research Project II  Summer, Fall, and Winter  (LAB: 12)  [1.00]
Independent study of a current topic in agricultural or environmental science designed to encourage senior undergraduates to conduct research. The focus of this course will be the completion of the research plan developed in AGR*4450 by the student in consultation with a faculty advisor. The course includes participation in meetings organized by the coordinator and meetings with a faculty advisor to review research progress. Students will carry out independent research, prepare a written report of the research findings in a scholarly style and make a presentation to other students in the course of the research results. Open to students in semesters 6, 7 and 8 of the B.Sc. (Agr.) or B.Sc. degree program.
Prerequisite(s): AGR*4450
Restriction(s): Permission of the course coordinator and faculty advisor.
Department(s): Dean's Office, Ontario Agricultural College
Location(s): Guelph
AGR*4600  Agriculture and Food Issues Problem Solving  Winter
Only  (LEC: 3)  [1.00]

The issues facing the agriculture and food sector are many and varied and relate to the economy, the environment and society. Within these issues there are problems which require thoughtful solutions. Working in teams, with guidance from faculty advisors, students will have an opportunity to develop solutions to real-world problems facing the agriculture and food sector. In the process students will have an opportunity to develop their research, communication, presentation, writing and group work skills.

Prerequisite(s): 12.50 credits

Restriction(s): Registration in BSC.AGR, BBRM, BCOMM.FAB, BCOMM.FAB.C, BSC.PLSC, or BA.FARE program, or Minor in Agriculture.

Department(s): Department of Plant Agriculture

Location(s): Guelph