

Sustainable Agriculture & Food Systems

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Program Coordinator

K. Thompson, BSc (Western), PhD (Guelph)

Associated Faculty

A. H. Akram-Lodhi, International Development Studies; **D. Beresford**, Environment; **S. Bocking**, Environment; **C. Durand**, History; **M. C. Eimers**, Environment; **N. Emery**, Biology; **D. Longboat**, Indigenous Studies; **A. Meneley**, Anthropology; **S. Narine**, Chemistry / Physics & Astronomy; **R. Ponce-Hernandez**, Environment; **S. Rutherford**, Environment; **B. Saville**, Forensic Science; **J. S. Williams**, Anthropology

The Sustainable Agriculture & Food Systems program is offered by the Trent School of the Environment. The program was created in response to interest in how we grow and consume food. The promise of sustainable agriculture; the environmental, social, and ethical consequences of conventional agriculture; investment in industrial crops to supply fuel and materials; ongoing risks to food security and human health; demand for local food production in the context of global food trade; cultural and social critiques of our food system, such as the Slow Food movement and advocacy of animal rights; growing interest in urban agriculture and in First Nations agriculture—these and other developments testify to how agriculture and food have become topics of discussion across Ontario and Canada. Graduates of the program will be equipped to contribute to these discussions, and to pursue diverse employment opportunities in agriculture and food.

Notes

- Both the BA and BSc programs are designed to provide an opportunity for interdisciplinary study of agriculture and food. Accordingly, students pursuing either degree will take courses from several departments, as described in the program requirements below.
- Courses in Sustainable Agriculture & Food Systems fulfilling University science course requirements for the BSc are marked “Sc” in the individual course descriptions.

Bachelor of Arts and Bachelor of Science Programs in Sustainable Agriculture & Food Systems

- In addition to the program requirements listed below, students must satisfy the University degree requirements (see p. 14).
- The same course may not simultaneously satisfy the requirements of both programs in a joint-major degree, with the following exceptions: for students pursuing a joint-major Honours degree in Sustainable Agriculture & Food Systems and Environmental & Resource Science/Studies, only ERSC 1010H and 1020H may be used to simultaneously satisfy the requirements of both programs. For students pursuing a joint-major Honours degree in Sustainable Agriculture & Food Systems and International Development Studies, only IDST 1001H and 1002H may be used to simultaneously satisfy the requirements of both programs.

Bachelor of Arts Program in Sustainable Agriculture & Food Systems

The single-major Honours program. 20.0 credits including the following 13.5 credits:

- 5.0 SAFS credits consisting of SAFS 1001H, 1002H, 2350H, 2500H, 3302H, 3340H, 3370H, 3602H, 4002H, and 4100H
- 2.0 SAFS credits at the 3000 level or beyond in addition to the above
- 2.0 SAFS credits in addition to the above
- 1.0 ERSC credit consisting of ERSC 1010H and 1020H
- 1.0 GEOG credit consisting of GEOG 1030H and 1040H
- 1.0 IDST credit consisting of IDST 1001H and 1002H
- 1.5 ERSC and/or ERST credits from ERSC 2240H, ERST 2100H, 2510H, 2520H, or 2525H

The joint-major Honours program. 20.0 credits including the following 8.0 credits:

- 2.5 SAFS credits consisting of SAFS 1001H, 1002H, 2350H, 2500H, and 4002H
- 2.0 SAFS credits at the 3000 level or beyond in addition to the above
- 1.5 SAFS credits in addition to the above
- 1.0 ERSC credit consisting of ERSC 1010H and 1020H
- 1.0 IDST credit consisting of IDST 1001H and 1002H

Bachelor of Science Program in Sustainable Agriculture & Food Systems

The single-major Honours program. 20.0 credits including the following 13.5 credits:

- 3.0 SAFS credits consisting of SAFS 1001H, 1002H, 2350H, 2500H, 3002H, and 4001H
- 0.5 SAFS credit from SAFS 3560H or 3650H
- 2.0 SAFS credits at the 3000 level or beyond in addition to the above
- 1.5 SAFS credits in addition to the above
- 1.5 BIOL credits consisting of BIOL 1020H, 2260H, and 2290H
- 2.0 ERSC credits consisting of ERSC 1010H, 1020H, 2220H, and 2240H
- 1.5 GEOG credits consisting of GEOG 1030H, 1040H, and 2530H
- 1.0 ERSC credit from ERSC 4350H, 4520H, 4530H, or 4640H
- 0.5 GEOG credit from GEOG 2080H or 2090H
- 14.0 science credits are required for the Honours degree, including 1.0 MATH credit; MATH 1051H and 1052H are recommended

The joint-major Honours program. 20.0 credits including the following 8.0 credits:

- 2.5 SAFS credits consisting of SAFS 1001H, 1002H, 2350H, 3002H, and 4001H
- 2.0 SAFS credits at the 3000 level or beyond in addition to the above
- 0.5 SAFS credit in addition to the above
- 0.5 BIOL credit consisting of BIOL 1020H
- 2.0 ERSC credits consisting of ERSC 1010H, 1020H, 2220H, and 2240H
- 0.5 BIOL credit from BIOL 2260H or 2290H
- 14.0 science credits are required for the Honours degree, including 1.0 MATH credit; MATH 1051H and 1052H are recommended

Specialization in Applied Agriculture

Trent University, in collaboration with Fleming College, offers a Specialization in Applied Agriculture. The Specialization is available to students in the BA or BSc program in Sustainable Agriculture & Food Systems (SAFS).

Students admitted to the program register as full-time Fleming students in the Graduate Certificate in Sustainable Agriculture, beginning in January following the fall term of the last year of their SAFS program. Students who complete the three-semester graduate certificate with a minimum average of 70% will receive 3.0 elective credits (1.0 unassigned 2000-level SAFS credit and 2.0 unassigned 3000-level SAFS credits) toward their Trent Honours degree.

The Trent University academic transcripts of students completing the Sustainable Agriculture graduate certificate program with an average of at least 65% in courses taken at Trent and 70% in courses taken at Fleming will contain the notation “with a Specialization in Applied Agriculture.” Graduates will also receive an Ontario College Graduate Certificate in Sustainable Agriculture from Fleming College.

Application Procedures

- Application is made in writing to the coordinator of the Sustainable Agriculture & Food Systems program. The deadline for applications is April 1 of the year preceding the intended entry into the graduate certificate program. Students are informed of the result of their application by the end of April. Applicants should state why they are interested in the program and include any related background or experience relevant to sustainable agriculture. Applicants must also demonstrate how they will complete the requirements for the BA or BSc in Sustainable Agriculture & Food Systems (with the exception of the transfer credits), as laid out in the Academic Calendar.
- To apply, students must have completed 15.0 credits toward their Trent degree, including program-specific requirements up to the third year, by the end of the academic year in which the application is made. Students must have a minimum cumulative average of 70%, including mid-year grades in the year in which the application is made.
- After eligibility for the program is confirmed by Trent, students are required to apply to Fleming through the Ontario College Application Service and to pay the appropriate OCAS fee.

Fees

Students pay community college fees for the year of the program. Consult the Fleming calendar for details on fees.

Facilities

Students in the program have access to the library and faculty at Trent. Students may retain Trent affiliation by paying the requisite fees. Contact Student Accounts for more information (finance@trentu.ca).

Please consult the academic timetable for information on courses that will be offered in 2019–2020, including when they will be scheduled.

- » **SAFS 1001H: Introduction to Sustainable Agriculture and Food Systems**
An interdisciplinary survey of the environmental, social, economic, political, and cultural aspects of agriculture and food. Topics examined include ecological agriculture, soil and crop management, pests and diseases management, food policy, local food, and food security. The purpose of the class is for students to develop an informed critique of agricultural systems. Excludes SAFS 2001H.
- » **SAFS 1002H: Case Studies in Sustainable Agriculture and Food Systems**
Provides in-depth exploration of three case studies to understand the social, economic and environmental impacts of key issues in sustainable agriculture and food systems. Uses approaches from both social sciences and the sciences to understand and unravel the complexity of case studies critical to this field. Prerequisite: SAFS 1001H or permission of the instructor.
- » **SAFS-ERSC 2350H: Ecological Agriculture (Sc) (see Environmental & Resource Science/ Studies)**
- » **SAFS-ERSC 2360H: Agriculture and Agricultural Alternatives (Sc) (see Environmental & Resource Science/Studies)**
- » **SAFS-GEOG-IDST-ANTH-SOCI 2500H: The World Food System (see International Development Studies)**
- » **SAFS-IDST-ANTH 2600H: Peasants, Food, and Agrarian Change (see International Development Studies)**
- » **SAFS-HIST-CAST 2821H: Food in History (see History)**
- » **SAFS-ERSC 3002H: Environmental Implications of Agriculture (Sc)**
An introduction to the scientific basis of agriculture and an exploration of the environmental implications of agriculture. Topics include agricultural ecology, soil and moisture management, nutrient management, pest management, energy consumption in the agricultural sector, and the impact on agriculture of ambient environmental conditions, including air pollution and climate change. Prerequisite: ERSC 2220H and 2240H. Excludes SAFS-ERSC 2002H.
- » **SAFS-BIOL 3240H: Agricultural Entomology (Sc)**
Looks at how integrated pest management methods (IPM) are applied to agricultural insect pests. Students will examine the principles of IPM, the role of insects in soil ecology, insects as allies in pest management and as pollinators, monitoring and sampling, and control methods (pesticide and organic). Prerequisite: 7.5 university credits including BIOL 1020H or permission of instructor. Excludes SAFS-BIOL 3110H.
- » **SAFS-ERST-PHIL 3302H: Animals and Society (see Environmental & Resource Science/ Studies)**
- » **SAFS-CAST-ERST 3340H: The Canadian Food System: Community Perspectives and Experiences**
The history of Canada's food and agricultural system is the backdrop to this interdisciplinary course on community development of the system's social, economic, and environmental sustainability. Production, distribution, processing, consumption, and regulatory issues are addressed. Community-based research projects are undertaken with local food and agricultural organizations. Field trip fee: \$5. Prerequisite: 10.0 university credits. Recommended: CAST-ERST-GEOG-INDG 2040Y, IDST-ANTH-GEOG-SAFS-SOCI 2500H, and SAFS-IDST-ANTH 2600H.

- » **SAFS-ERSC-BIOL 3370H: Organic Agriculture: Principles and Practices (Sc)**
Focuses on farming methods and requirements for organic production. The importance of ecological processes, biodiversity, rotation, and organic amendments in organic crop production will be discussed. The standards, certification, packaging, and diversity of markets for organic foods will be emphasized. Mandatory field trips to organic farms. Field trip fee: \$30. Prerequisite: SAFS 1001H and SAFS-ERSC 2350H.
- » **SAFS 3500H: Food Science: Composition, Processing, Preservation, and Safety (Sc)**
An introduction to the nature and composition of food, techniques and concepts of food science, technologies used in processing food, and issues related to food safety. Prerequisite: Both ERSC 2220H and 2240H; one of SAFS-ERSC 2350H or 3350H; and one of SAFS-ERSC 2360H or 3360H.
- » **SAFS-ERSC-GEOG 3560H: Soil Science (Sc) (see Geography)**
- » **SAFS-ERST-IDST-POST 3602H: Environment and Development (see Environmental & Resource Science/Studies)**
- » **SAFS-ERST-IESS-INDG 3634H: Introduction to Indigenous Food Systems (see Indigenous Studies)**
- » **SAFS-ERSC-GEOG 3650H: Soil Management and Conservation (Sc) (see Environmental & Resource Science/Studies)**
- » **SAFS-ANTH 3746H: Anthropology of Drinks and Drinking (see Anthropology)**
- » **SAFS-IDST-ERST-ANTH 3800D: Community Development (see International Development Studies)**
- » **SAFS-ANTH 3820H: Culture and Food (See Anthropology)**
- » **SAFS 3852H: Farming in the Kawarthas**
Focus is on farming and food system practices in the Kawartha region. Visits and course material focus on farm visits and marketing of local produce. Students conduct a project on an agreed farm or agri-business as part of an internship. Prerequisite: A minimum cumulative average of 70%, 10.0 university credits including SAFS 2350H or 2360H, and permission of the instructor. Students must write a letter of interest to be considered for admission.
- » **SAFS 3900Y, 3901H: Reading Course**
A research course on a specific topic. Only open to SAFS majors or joint-majors with a minimum average of 75% in 2.0 SAFS credits. Written permission must be obtained from the appropriate instructor and the SAFS program coordinator before registration.
- » **SAFS 4001H: Seminar in Sustainable Agriculture and Food Systems Science (Sc)**
Examines advanced topics relating to scientific study of sustainable agriculture and food systems. Coursework will build on concepts and techniques encountered in other SAFS science courses. Prerequisite: SAFS-ERSC 2350H and 2360H.
- » **SAFS 4002H: Seminar in Sustainable Agriculture and Food Systems Studies**
Examines advanced topics relating to sustainable agriculture and food systems, applying social, political, and cultural perspectives. Access to and critical analysis of current research in the field is emphasized. Prerequisite: SAFS-ERSC 2350H and 2360H.
- » **SAFS 4003D: Research and Internship in Sustainable Agriculture and Food Systems**
Prerequisite: Only open to SAFS majors or joint-majors with a minimum average of 75% in 2.0 SAFS credits. Written permission must be obtained from the appropriate instructor and the SAFS program coordinator before registration.

- » **SAFS 4010Y/4020D: Honours Thesis (Sc depending upon topic)**
Design, implementation, and dissemination of a major research project in sustainable agriculture and food systems featuring independent work under the supervision of a faculty supervisor. SAFS 4020D is a double credit in Sustainable Agriculture & Food Systems. SAFS 4010Y is a single credit because the same thesis is submitted to the other program in a joint major. Prerequisite: 14.0 university credits and a minimum cumulative average of 75%. Students must find a faculty member who is agreeable to supervise their project. Applications are available from the TSE office, and should be submitted in the academic year before enrolment in the course.
- » **SAFS 4100H: Canadian Food and Agriculture Policy**
Examines the policies and associated legal instruments relating to agricultural production and food consumption in Canada, as administered by the federal government, provincial governments, and municipal and other local governments. Particular attention to the dynamics of policy development and controversy, and of policy innovation. Prerequisite: 10.0 university credits including SAFS 1001H or both IDST 1001H and 1002H.
- » **SAFS 4101H: Agroecological Learning and Practice**
This two-week intensive course explores and scrutinizes agroecology through a survey of the relevant literature, guest expert speakers and colloquia, practical agroecological planning, and fieldwork. Provides opportunities for a broad engagement with agroecological scholarship, as well as opportunities to apply this knowledge and problem-solve within the specific contexts of the Peterborough and Kawartha region and the campus of Trent University. Prerequisite: 10.0 university credits.
- » **SAFS 4200H: The Edible Campus**
Provides opportunities to conduct research and develop workshops relating to food production, using opportunities for experiential education provided by food and agriculture operations at Trent University, such as the Sustainable Agriculture Experimental Farm and the Trent Market Garden. Prerequisite: 10.0 university credits including SAFS 1001H, or permission of the instructor.
- » **SAFS-BIOL-ERSC-GEOG 4270H: Integrated Nutrient Management for Sustainable Agriculture (Sc)**
Examines plant nutrition, soil fertility, and fertilizer management, with a focus on essential macronutrients. Topics include biogeochemical cycling of nitrogen, phosphorus, potassium, calcium, magnesium, and sulphur in crop production. Sustainable management of nutrients for optimum productivity and minimum impact on the environment will be discussed. Prerequisite: SAFS-ERSC-GEOG 3560H.
- » **SAFS-ANTH 4350H: Origins and Spread of Agriculture (Sc) (see Anthropology)**
- » **SAFS-ANTH-BIOL 4440H: Nutritional Anthropology (Sc) (see Anthropology)**
- » **SAFS-GEOG-CAST 4444H: Rural Community Sustainability (see Geography)**
- » **SAFS-ERST-IDST-POST 4610H: Global Environmental Policy (see Environmental & Resource Science/Studies)**
- » **SAFS 4650H: Climate Change, Agriculture, and Food Security (Sc)**
Examines the implications of climate change for agriculture, including its impacts on agricultural production, and the role of agriculture as both a producer of greenhouse gases and a potential mitigating agent in climate change. Emphasis is on climate and crop growth simulation modelling and scenarios for mitigation and adaptation. Prerequisite: SAFS-ERSC 3002H.
- » **SAFS-ANTH-POST 4830H: Anthropology of Food Politics (see Anthropology)**

» **SAFS 4840H: Soil Biodiversity and Functioning**

A lab-based course focused on soil organisms and soil biodiversity; emphasis on the role of organisms in nutrient cycles and plant growth promotion using a hands-on approach to investigate key soil functions. Approaches for analyzing microbial populations and activities in the environment, including molecular techniques are covered. Prerequisite: 9.0 university credits including SAFS 1001H.

» **SAFS 4850Y: Community-Based Research Project**

Students are placed in research projects with community organizations in the Peterborough area. Each placement is supervised jointly by a faculty member and a representative of a community organization. For details see Community-Based Research Program ([p. 429](#)). Prerequisite: 14.0 university credits and a minimum cumulative average of 75%.

» **SAFS 4900Y, 4901H: Reading Course**

A research course on a specific topic. Only open to SAFS majors or joint-majors with a minimum average of 75% in 2.0 SAFS credits. Written permission must be obtained from the appropriate instructor and the SAFS program coordinator before registration.