AGRICULTURE AND FOOD SYSTEMS (AGFS)

The Agriculture and Food Systems (AGFS) program offers a highly flexible curriculum to students interested in cultivating expertise in a wide variety of topics including modern agricultural practices, the science and management of working landscapes, local and regional food systems, value-added agricultural products, and the promotion of healthy eating through sustainable food production and policies. Our graduates are prepared to pursue careers in a diverse range of fields including the production of food, fiber, and agricultural services; management and marketing of agricultural operations; management of working lands, landscapes, and ecosystems; agriculture/food/nutrition/natural resources-related research; community development; policy-making; regulatory work; and other current and emerging professions.

The program offers both a Bachelor of Science (B.S.) degree and a Bachelor of Arts (B.A.) degree. The B.S. degree best serves those seeking a strong foundation in scientific and technical knowledge and/or who envision pursuing an advanced degree in the agricultural sciences. The B.A. degree offers more flexibility to take courses from a variety of disciplines outside the biological sciences. Both degrees are flexibly designed to enable students to pursue a minor, dual degree, and/or second major.

https://colsa.unh.edu/agriculture-nutrition-food-systems

Programs

- Agriculture and Food Systems Major (B.A.)
- Agriculture and Food Systems Major (B.S.)
- Agriculture and Food Systems Minor
- Brewing Minor
- Horticulture Minor

Courses

Agriculture & Food Systems (AGFS)

AGFS 403 - Green Thumb Workshop
Credits: 2
The objective of this course is to instill a life-long appreciation for garden plants and the many aesthetic, therapeutic, and culinary roles they play in enhancing our lives and landscapes. This course emphasizes hands-on learning of key horticultural skills and techniques (e.g. garden design, propagation, pruning, plant breeding, and problem diagnosis), complemented by activities designed to bring the beauty and utility of plants to life (e.g. flower arranging, botanical drawing, dyeing, and tastings).
Equivalent(s): SAFS 403
Grade Mode: Letter Grading
Special Fee: Yes

AGFS 405 - Sustainable Agriculture and Food Production
Credits: 4
This course will introduce you to sustainable agriculture and the food system more broadly. We will explore the impacts of different food production systems, with an emphasis on those common in the United States. We will explore key issues and challenges facing sustainable agriculture and food systems, and you will learn how to explore primary research to dig deeply into the questions you care about. Throughout, we will consider the role you have in influencing our food system, either as a producer, consumer, educator, and/or policymaker.
Attributes: Environment,TechSociety(Disc)
Equivalent(s): SAFS 405
Grade Mode: Letter Grading

AGFS 410 - A Taste of the Tropics
Credits: 4
This course will expose students to the exciting world of tropical agriculture and the ways that people in the tropics utilize a diverse array of food crops. Our lives as consumers in the developed world are touched by tropical products every single day. Whether it's the cinnamon in your tea, the vanilla in your cookies, the black pepper on your salad, or your cup of hot coffee, you likely consume tropical crops whether you know it or not. Ever stop to wonder where these items are from and how they are produced? We will examine agriculture and food culture throughout the tropical world's four principle areas: Latin America, Tropical Asia, Tropical Africa, and the South Pacific. Production systems ranging from large scale modern high input operations to home subsistence gardens are explored. Tropical crops are examined in five major groups: grains and legumes, starchy roots, exotic vegetables, tropical fruit, and herbs, spices, medicinal plants. Cultural uses of these crops throughout the tropical world are given special emphasis.
Attributes: World Cultures(Discovery)
Equivalent(s): SAFS 410
Grade Mode: Letter Grading

AGFS 415 - Introduction to Brewing Art and Science
Credits: 4
Introduction to the scientific foundations of beer brewing. Topics covered will include beer styles; ingredient sourcing; industrial production from nano to macro scale; current trends and topics; quality control; safety and sustainability.
Equivalent(s): SAFS 415
Grade Mode: Letter Grading

AGFS 421 - Introductory Horticulture
Credits: 0 or 4
This course will introduce the disciplines of plant science and horticulture. Students will learn the fundamentals of plant structure and how cells, tissues, organs and whole plants develop and function. Students will then explore how environmental factors affect growth and development, and how humans manipulate them to produce horticultural crops: fruits, vegetables, flowers and landscape plants. Labs are designed to emphasize and reinforce the principles covered in lecture and will give students a hands-on introduction to horticulture. Lab.
Attributes: Biological Science(Discovery); Discovery Lab Course
Equivalent(s): PLSC 421
Grade Mode: Letter Grading
Special Fee: Yes

AGFS 502 - Agroecology
Credits: 4
This course introduces students to the discipline and practice of agroecology, with an emphasis on relevant ecological theory within the context of production agriculture. Students are exposed to key ecological principles from population, community, and ecosystem ecology and agronomy. Students learn about the history and consequences of modern industrial agricultural systems and the need for more sustainable management practices that consider ecological interactions.
Equivalent(s): SAFS 502
Grade Mode: Letter Grading

AGFS 515 - Technical Brewing
Credits: 4
Technical brewing will focus on learning skills needed in the brewing industry. This hands-on class will focus on sensory, the brewing process, quality control, safety, and sanitation in the brew house. Must be 21 to enroll in the course.
Prerequisite(s): SAFS 415 with a minimum grade of D- or AGFS 415 with a minimum grade of D-.
Equivalent(s): SAFS 515
Grade Mode: Letter Grading
Special Fee: Yes

AGFS 601 - Fruit Crop Production
Credits: 4
Fruit crops represent an important component of both our dietary needs and our agricultural production systems. This course explores the origin, distribution, botany, physiology, and culture of fruit crops. Emphasis will be given to temperate fruit crops adapted to New England growing conditions. The course also explores integrating fruit crops into landscapes, organic and conventional cultural practices, and post-harvest handling.
Prerequisite(s): SAFS 421 with a minimum grade of D- or AGFS 421 with a minimum grade of D-.
Equivalent(s): SAFS 601
Grade Mode: Letter Grading

AGFS 602 - Emphasis Development and Professional Pathways in Sustainable Agriculture and Food Systems
Credits: 1
In this 1 credit required course, AGFS juniors convene as a cohort to develop their personal Student-Designed Emphases, a defining component of the AGFS major. Having completed the broad suite of AGFS Foundation Courses and at least some Program Electives by this time, AGFS juniors are well-positioned to reflect upon their evolving interests and chart a thoughtful, upper-level academic path that aligns with their personal and professional goals. Through writing prompts, facilitated peer-to-peer discussions, and faculty-guided development and revisioning of their written emphasis declarations, each student will learn to effectively articulate their area of focus within AGFS while honing their writing and communication skills. To help students connect their Emphases and professional aspirations to University resources, experiential opportunities, and the wide range of careers in the food system, weekly class time will feature interactive guest presentations from AGFS upperclassmen/alumni, program representatives, and food system practitioners.
Equivalent(s): SAFS 602
Grade Mode: Letter Grading

AGFS 620 - Food Systems & Community Resilience
Credits: 4
This course is designed to provide a broad overview of the emerging field of food systems. We will use a systems perspective to better understand how the U.S. food system shapes the food we eat, and the character and health of our communities and environment. In the second half of the course, we will critically evaluate alternative food system development, policies, and initiatives aimed at improving farmers' livelihoods, environmental sustainability, food justice, and community resilience.
Prerequisite(s): SAFS 405 with a minimum grade of D- or AGFS 405 with a minimum grade of D-.
Equivalent(s): SAFS 620
Grade Mode: Letter Grading

AGFS 632 - Urban Agriculture
Credits: 4
Urban agricultural systems play an important role in local food production. Production systems range from community gardens to completely controlled production environments. Urban farmers face unique challenges developing sustainable business models due to high land costs, waste management, post-harvest storage, and limited technical experience. This course provides a practical, hands-on understanding of urban agricultural production systems. Emphasis is placed on controlled environmental agriculture from an urban farmer's perspective through classroom discussion and production systems operation.
Equivalent(s): SAFS 632
Grade Mode: Letter Grading

AGFS 651 - Plant Pathology
Credits: 4
Plant pathology is the science of plant diseases, with implications for human and ecological health. Many principles of animal and human pathology also apply to plants; however, a plant pathologist's goal is to reduce loss and damage to plant populations caused by disease, to increase crop quality, yield, and grower profit. This course provides a survey of plant pathogens, their life cycles, introductory concepts of infection, disease spread, and management. Students will learn about interactions between plants, beneficial and pathogenic microbes, and the environment as well as biological and other methods to control and prevent plant diseases.
Prerequisite(s): BIOL 409 with a minimum grade of D- or SAFS 421 with a minimum grade of D- or AGFS 421 with a minimum grade of D-.
Equivalent(s): BOT 651, PBIO 651, SAFS 651
Grade Mode: Letter Grading
Special Fee: Yes

AGFS 670 - Systems Thinking: Land Use Capability and Sustainability in Aotearoa New Zealand
Credits: 4
This course establishes a conceptual framework in systems thinking to critically examine New Zealand and global examples of the challenges that have arisen from the mismatch between land use and land use capability. Students investigate downstream effects of the rural-urban divide (food-justice), on people, health, services and the environment. Food security, ethical foods, as well as the influence of climate change on food supply and the viability of agribusiness are included.
Co-requisite: AGFS 671, AGFS 672, AGFS 673, INCO 588
Equivalent(s): SAFS 670
Grade Mode: Letter Grading
Special Fee: Yes

AGFS 671 - Agroecology and Sustainable Land Management in Aotearoa New Zealand
Credits: 4
Agroecology is a way of thinking and acting. Using this lens, students investigate the interface of agriculture and the natural environment. Through first-hand experiences with agribusiness, students explore enduring solutions for sustainable food systems. The emphasis will be on dimensions of agroecology that are relevant in a framework of sustainable land management; and on gaining confidence in evaluating processes and science associated with the biological an physical process in agroecosystems.
Co-requisite: AGFS 670, AGFS 672, AGFS 673, INCO 588
Equivalent(s): SAFS 671
Grade Mode: Letter Grading
Special Fee: Yes

AGFS 672 - Pathways to Sustainable Agriculture and Food Systems in Aotearoa New Zealand
Credits: 4
This course empowers students to pursue knowledge and understanding of food systems around the interface of policy, practice, and science to build pathways toward technically robust, economically sound and viable solutions which enable transformation in the rural landscape. Topics include: value systems, socio-cultural benefits of re-thinking food systems at sale, carbon-forestry, carbon offsets, nutrient cap-and-trade models, (Integrated) Catchment Management and Climate Smart Agriculture. Critical thinking and risk assessment tools are integral components.
Co-requisite: AGFS 670, AGFS 671, AGFS 673, INCO 588
Equivalent(s): SAFS 672
Grade Mode: Letter Grading
Special Fee: Yes

AGFS 673 - Agricultural Production and Business Practice in Aotearoa New Zealand
Credits: 4
In this experiential course students will spend time in farm or agri-business placements. Practical, hands-on experience of the workings of agribusiness provides students with opportunities to enhance their autonomy and capacity as active learners. Students will gain transferable skills, increase competency and develop a comprehensive understanding of sustainability initiatives and practices of food systems. Students can transfer insights from classroom work to a practical setting and bring previously developed skills to a new context.
Co-requisite: AGFS 670, AGFS 671, AGFS 672, INCO 588
Equivalent(s): SAFS 673
Grade Mode: Letter Grading
Special Fee: Yes

AGFS 679 - Food Production Field Experience I
Credits: 4
This is part one of a two course series to be taken during spring semester. Course provides students with hands-on experience in growing food and managing a small farm business. We will be growing fresh vegetables and some fruits for the UNH Dairy Bar. Lectures, readings, and hands-on activities during Part I focus on all aspects of production: propagation, crop establishment, irrigation, crop management, soil considerations, and pest and disease practices.
Equivalent(s): SAFS 679
Grade Mode: Letter Grading

AGFS 680 - Food Production Field Experience II
Credits: 4
This is part of a two course series to be taken during fall semester. Course provides students with hands-on experience in growing food and managing a small farm business. We will be growing fresh vegetables and some fruits for UNH Dining Services. Lectures, readings, and hands-on activities in part two focus on crop harvesting and maturity, post-harvest considerations, marketing, special event planning and execution, record keeping, and small farm business management.
Equivalent(s): SAFS 680
Grade Mode: Letter Grading

AGFS 689W - Greenhouse Management and Operation
Credits: 4
Course provides introduction to greenhouse construction, design, environmental control, and current trends in the industry. Fundamentals of starting a greenhouse business including safety and labor, marketing, and post-harvest considerations also covered. Efforts towards making the greenhouse industry more sustainable are explored alongside with certification options and procedures. Crops representative of current major New England crops are grown during lab. Students learn about crop selection and practices including IPM, irrigation, and fertility management. Lab. (Offered alternate years).
Attributes: Writing Intensive Course
Prerequisite(s): SAFS 421 with a minimum grade of D- or AGFS 421 with a minimum grade of D-.
Equivalent(s): PBIO 689, SAFS 689
Grade Mode: Letter Grading
Special Fee: Yes

AGFS 690 - Agricultural and Food Policy
Credits: 4
This course will provide students with a broad understanding of the agri-food sector in the US and the role of government and other stakeholders in developing policies that influence food production, distribution and consumption. It will equip students with tools to analyze public policies and prepare them to effectively engage in real world contemporary debates and problem solving in this field.
Equivalent(s): EREC 680, EREC 704
Grade Mode: Letter Grading

AGFS 733W - Advanced Topics in Agriculture and Food Systems
Credits: 4
In this writing-intensive, capstone course, AGFS juniors and seniors engage in critical, student-led discussion of instructor-chosen and student-selected works related to food systems sustainability across scales, local to global. With these discussions as context, students pursue individual, semester-long projects to practically address a specific issue of interest. The course aims to improve critical reading, writing, discussion, and presentation skills; build cohort cohesiveness; and challenge students' beliefs and working assumptions about agriculture and food systems sustainability.
Attributes: Writing Intensive Course
Equivalent(s): SAFS 733
Grade Mode: Letter Grading

AGFS 750 - Food System Solutions; Increasing Sustainability and Equity
Credits: 4
We will study a range of solutions to address cross-cutting issues in the food system, including unsustainable farming systems, inequitable access to nutritious food, dietary patterns that promote chronic disease, and the lack of sustainable livelihoods for farmers and food chain workers. Students will learn to critically examine policies, programs and social movements aimed at increasing the equity and sustainability of the food system. We will identify the strengths and weaknesses of these approaches, recognizing the limits and blind spots, uneven impacts, and leverage points of the proposed solutions we study.
Prerequisite(s): SAFS 620 with a minimum grade of D- or AGFS 620 with a minimum grade of D- or NUTR 730 with a minimum grade of D-.
Equivalent(s): SAFS 750
Grade Mode: Letter Grading

AGFS 760W - Integrated Pest Management
Credits: 4
This course explores integrated pest management (IPM) in agricultural systems, which uses the fundamentals of pest biology and identification to develop practical and effective pest management plans. In the context of this course, pests include insects, plant pathogens, and weeds. In this course, you will practice written and oral communication of science-based information and practical pest management approaches, and will hone your skills in finding, understanding, and summarizing scientific literature and identifying reliable sources of web-based information.
Attributes: Writing Intensive Course
Prerequisite(s): (BIOL 411 with a minimum grade of D- or BIOL 411H with a minimum grade of D- or BIOL 413 with a minimum grade of D-) and (BIOL 412 with a minimum grade of D- or BIOL 412H with a minimum grade of D- or BIOL 414 with a minimum grade of D-).
Equivalent(s): PBIO 760, SAFS 760
Grade Mode: Letter Grading

AGFS 795 - Investigations
Credits: 1-4
With faculty guidance, students work on individual projects related to sustainable agriculture and food systems.
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): AGFS 795W, SAFS 795, SAFS 795W
Grade Mode: Letter Grading

AGFS 795W - Investigations
Credits: 1-4
With faculty guidance, students work on individual projects related to sustainable agriculture and food systems.
Attributes: Writing Intensive Course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): AGFS 795, SAFS 795
Grade Mode: Letter Grading

AGFS 799H - Honors Senior Thesis
Credits: 1-4
Independent research requiring a written proposal, thesis, and presentation of research results to an audience of faculty and/or students. Intended for students completing AGFS Honors-in-Major requirements. Contact AGFS Program coordinator prior to senior year to arrange supervision and obtain permission. Two-semester sequence; students typically register for 5 credits over two semesters.
Attributes: Honors course
Repeat Rule: May be repeated for a maximum of 8 credits.
Equivalent(s): SAFS 799
Grade Mode: Letter Grading

Faculty

Agriculture, Nutrition and Food Systems Department Faculty