
The multidisciplinary Bachelor of Science degree in Sustainable Agriculture and Food Systems (SAFS) serves students interested in improving the sustainability of modern food and agricultural systems. This major prepares graduates to understand the interdisciplinary and systems-based aspects of sustainability and provides them with the knowledge, leadership skills, and experiences required to excel in agricultural and food systems professions. A degree in SAFS prepares students for a broad range of careers related to agricultural production (including plant, animal, and biofuels) and food system management, rural and urban community services, education and development, as well as careers in agricultural, environmental, and economic policy and analysis. Employers may include private industry, local, state and federal government, public service agencies, non-profit organizations, nature preserves, community organizations, or any other group that aims to produce, distribute, or improve access to food, to improve the quality and/or sustainability of food or food systems, to improve human health related to diet and nutrition, to work towards social justice related to food access or hunger, or to develop policy or social structures related to food or food systems. The SAFS major also prepares students for graduate studies in a wide range of fields related to agriculture, food, water, and energy systems.

A – GENERAL EDUCATION CORE – 42 HOURS

Students must fulfill the General Education Core requirements. The courses listed below satisfy both degree requirements and General Education core requirements.

Required

020 - Mathematics – 3 hours

Choose one:

MATH 1324 Mathematics for Business and Social Sciences
MATH 1325 Calculus for Business and Social Sciences
MATH 1342 Elementary Statistical Methods (or MATH 1387 Honors)
MATH 1343 Introduction to Biostatistics (or MATH 1388 Honors)
MATH 1414 College Algebra three-hour lecture (*required for Agriculture & Ecology or Food & Health Tracks*)

030 - Life and Physical Sciences – 6 hours

ENVR 1401 Introduction to Environmental Science I three-hour lecture
ENVR 1402 Introduction to Environmental Science II three-hour lecture

080 – Social & Behavioral Sciences – 3 hours

ECON 2301 Principles of Macroeconomics

090 - Integrative and Experiential Learning – 3 hours

COMM 1315 Public Speaking
ENVR 1401 Introduction to Environmental Science I one-hour lab
ENVR 1402 Introduction to Environmental Science II one-hour lab

B – MAJOR REQUIREMENTS – 65 - 69 HOURS (49 advanced minimum)

Students should carefully plan prerequisites and proper course sequence by meeting with an advisor from the program when selecting this major.

1 – Sustainable Agriculture & Food Systems Core – 42 hours (34 advanced)

BIOL 1406 General Biology I (or BIOL 1487 Honors)
BIOL 1407 General Biology II (or BIOL 1488 Honors)
ANTH 4310 Food and Culture
BIOL 4388 Global Change Ecology (*requires consent of instructor*)
BIOL 4429 Agroecology (*requires consent of instructor*)
ECON 3355 Development Economics
ENVR 3305 Sustainable Agriculture
HIST 4333 Food and Agricultural History
PHIL 4318 Philosophy of Food

Choose one:

ENVR 3301 Natural Resources Conservation
ENVR 3304 Sustainable Development

Capstone:

EEMS 4381 Community-Engaged Service Learning I (or CESL 3301)
EEMS 4382 Community-Engaged Service Learning II (or CESL 3302)
EEMS 4191 Interdisciplinary Seminar Series Fall
EEMS 4192 Interdisciplinary Seminar Series Spring
EEMS 4193 Interdisciplinary Synthesis & Communication

2 – Sustainable Agriculture & Food Systems Track – 23 - 27 hours (15 advanced minimum)

a. Agriculture and Ecology Track – 23 hours (23 advanced)

i- Track Core – 13 hours (13 advanced)

BIOL 3409 Ecology
EEMS 3360 Soil Science and Conservation
EEMS 4365 Integrated Pest Management
ENVR 4351 Environmental Management

ii- Track Electives – 10 hours (10 advanced)

†Denotes electives with additional prerequisites not required for this degree

Choose at least one:

BIOL 3404 Conservation Biology
BIOL 3413 Genetics
BIOL 4415 Entomology†
BIOL 4316 Environmental Toxicology†
BIOL 4423 Wildlife Ecology and Management
ECON 3360 Managerial Economics†
EEMS 4360 Food Science
EEMS 4366 Nanotechnologies for Food and Agriculture
ENVR 3303 Research Methodology and Data Analysis in Environmental Sciences†
ENVR 4350 Environmental Planning and Permitting
ENVR 4450 Environmental Monitoring
GEOL 3402 Hydrologic Systems†

Choose at least one:

Recommended courses related to crop production:

BIOL 3408 Plant Morphology
BIOL 4318 Ethnobotany
BIOL 4405 Plant Physiology
BIOL 4408 Plant Pathology
BIOL/MARS 4410 Marine Botany
BIOL 4414 Plant Taxonomy
BIOL 4420 Plant Anatomy

Recommended courses related to livestock production:

BIOL 3345 Animal Nutrition
BIOL 4407 Animal Parasitology†
BIOL 4411 Ecological Physiology of Animals
BIOL 4432 Animal Behavior

Recommended courses related to aquaculture/fisheries:

BIOL/MARS 4402 Marine Zoology
BIOL 4404 Ichthyology
BIOL 4419 Aquatic Entomology
BIOL/MARS 4426 Marine Ecology
BIOL/MARS 4427 Marine Animal Field Studies
BIOL/MARS 4430 Coastal Ecology
ENVR 3405 Oceanography†

b. Food and Health Track – 27 hours (22 advanced minimum)

i- Track Core – 16 - 17 hours (10 – 14 advanced)

BIOL 1322 Human Nutrition
BIOL 4319 Medical Entomology
EEMS 4360 Food Science

Choose one focus:

Biochemistry focus:

CHEM 2123 Organic Chemistry I Lab
CHEM 2323 Organic Chemistry I
CHEM 3103 Biochemistry I Lab
CHEM 3303 Biochemistry I

Microbiology focus:

BIOL 3401 General Microbiology
BIOL 3403 Medical Microbiology and Immunology

Toxicology focus:

BIOL 3412 Cell Biology
BIOL 4316 Environmental Toxicology (*requires 6 hours of organic chemistry or biochemistry not otherwise required for this degree*)

ii- Track Electives – 10-11 hours (10 – 11 advanced)

Students should always consult a faculty mentor when choosing electives to ensure an appropriate course of study.

†Denotes electives with additional prerequisites not required by this degree plan

‡Denotes courses that require faculty mentor or Program Director approval

Recommended courses related to nutrition or dietetics:

EEMS 4366 Nanotechnologies for Food and Agriculture
HLTH 3372 Nutrition and Health†
HPRS 3316 Nutrition Concepts for Allied Health Practitioners†
Any Nutritional Sciences (NUTR) course with Program Director approval

Recommended courses related to epidemiology:

BIOL 3401 General Microbiology
BIOL 3413 Genetics
BIOL 3414 Invertebrate Zoology
BIOL 4317 Disease Epidemiology†
BIOL 4407 Animal Parasitology†
BIOL 4413 General Virology†
BIOL 4415 Entomology†
BIOL 4421 Biotechnology†
BIOL 4424 Microbial Ecology†
BIOL 4428 Medical Genomics†
ENVR 3303 Research Methodology and Data Analysis in Environmental Sciences†
EEMS 4365 Integrated Pest Management†
ENVR 4351 Environmental Management

c. Food and Society Track – 24 hours (15 advanced minimum)

i- Track Core – 18 hours (12 advanced minimum)

ANTH 4314 Environmental Anthropology
HIST 3335 American Environmental History
POLS 4357 Urban Sustainability
SOCI 1301 Introduction to Sociology

Choose one:

GEOL 3408 Introduction to Geographic Information Systems
SOCI 3301 Statistics for the Behavioral Sciences

Choose one:

ENVR 3302 Environmental Ethics
PHIL 2324 Professional Ethics: Business

ii- Track Elective – 6 hours (3 advanced minimum)

Choose one course each from two of the pools below.

†Denotes electives with additional prerequisites not required by this degree plan

Pool 1

COMM 3321 Public Relations: Theory and Practice
COMM 4334 Communication Campaigns (*requires COMM 3321*)
COMM 4345 Conflict Management
ENVR 4301 Environmental Regulations (*requires ENVR 3301 and ENVR 3302*)
GEOL 4408 Applications of Geographic Information Systems (*requires GEOL 3408*)
HIST 3302 Geography and Environment in History

Pool 2

ANTH 1324 Human Evolution
ANTH 4385 Topics in Anthropology (Food and Drink from Past to Present)
HIST 3326 Indians of North America
HIST 3329 American Legal History
HIST/MASC 3332 Mexican-American History
MASC 2301 Introduction to Mexican American Studies
PHIL 1360 Understanding Society and Politics
PHIL 1364 Philosophy of the Social Sciences
PHIL 4322 Social and Political Philosophy
POLS 4344 Green Political Theory

Pool 3

SOCI 3312 Environmental Sociology
SOCI 3348 Disaster and Society
SOCI 4310 Sociology of Gender
SOCI 4313 Race and Ethnic Relations (*requires 6 hours of sociology*)
SOCI 4326 Population and Society†
SOCI 4343 Sociology of Globalization (*requires 6 hours of sociology*)
SOCI 4352 Social Stratification (*requires 6 hours of sociology*)
SOCI 4380 Social Protest and Social Movements (*requires 6 hours of sociology*)

d. Business and Policy Track – 27 hours (15 advanced minimum)

i- Track Core – 12 hours (9 advanced minimum)

HIST 3335 American Environmental History
POLS 4356 U.S. Environmental Policy
POLS 4357 Urban Sustainability

Choose one:

ENVR 3302 Environmental Ethics
PHIL 2324 Professional Ethics: Business

ii- Track Electives – 15 hours (6 advanced minimum)

†Denotes electives with additional prerequisites not required by this degree plan

Choose at least one:

ECON 3341 Econometrics†
ECON 3342 Business and Economics Forecasting
GEOL 3408 Introduction to Geographic Information Systems
POLS 2470 Introduction to Political Science Research (*requires MATH 1314*)
SOCI 3301 Statistics for the Behavioral Sciences

Choose at least one:

ECON 3343 Economics of the Government Sector
ECON 3351 Macroeconomic Theory
ECON 3352 Microeconomic Theory
ECON 3353 International Trade
ECON 3357 Economics of Poverty
ECON 3358 Labor Economics
ECON 3360 Managerial Economics
ECON 4340 Introduction to Mathematical Economics (*requires MATH 1342*)

Choose at least one:

POLS 2340 Introduction to Political Theory
POLS 2350 Introduction to Political Economy
POLS 3310 U.S. State and Local Government
POLS 3321 Comparative Politics of Developing Nations
POLS 3333 Gender Theory in World Politics
POLS 3342 Contemporary Political Theory
POLS 3351 Interest Groups and Political Movements

POLS 3355 U.S. Public Policy
POLS 3356 U.S. Economic Policy
POLS 4313 U.S. Legislative Process
POLS 4316/MASC 4316 U.S. Latin@ Politics
POLS 4332 International Organizations
POLS 4350 Political Socialization and Civic Engagement
POLS 4355 U.S. Labor Policy

Choose at least one:

ANTH 4314 Environmental Anthropology
ENVR 4301 Environmental Regulations (*requires ENVR 3301*)
ECON 3336 The Political Economy of Mexico
POLS 3323 Middle Eastern Politics
POLS 3324 Asian Politics
POLS 3330 International Politics
POLS 4320 Latin American Politics
POLS 4321 Central American and Caribbean Politics
POLS 4322 Western European Politics
POLS 4323 Mexican Politics
POLS 4324 Contemporary Chinese Politics
POLS/MASC 4333 U.S.-Mexico Border Relations

Entrepreneurship Option

Instead of the four selections above, take the two ENTR courses below and choose two courses from the pool that follows:

ENTR 3356 Introduction to Entrepreneurship
ENTR 3340 New Venture Creation and Innovation

Choose two:

ACCT 2301 Introduction to Financial Accounting (*requires MATH 1324 or 1325*)
MARK 3300 Principles of Marketing (*requires department approval*)
MGMT 3361 Principles of Management
FINA 3391 Small Business Financial Management†
FINA 3393 Entrepreneurial Finance†
Any ACCT, ENTR, MARK, MGMT, or FINA course with Program Director approval

C – SUPPORT COURSES – 9 - 13 HOURS

a. Agriculture and Ecology Track – 13 hours

CHEM 1111 General Chemistry I Lab
CHEM 1112 General Chemistry II Lab
CHEM 1311 General Chemistry I
CHEM 1312 General Chemistry II
MATH 1414 College Algebra one-hour lab
PHYS 1401 General Physics I

b. Food and Health Track – 9 hours

CHEM 1111 General Chemistry I Lab
CHEM 1112 General Chemistry II Lab
CHEM 1311 General Chemistry I
CHEM 1312 General Chemistry II
MATH 1414 College Algebra one-hour lab

c. Food and Society Track – 12 hours (3 advanced)

ANTH 2302 Introduction to Archeology
ANTH 2351 Introduction to Cultural Anthropology
HIST 3300 Historiography and Methods
PHIL 1312 Introduction to Social and Political Philosophy

- d. Business and Policy Track – 9 hours (3 advanced)**
HIST 3300 Historiography and Methods
PHIL 1312 Introduction to Social and Political Philosophy
ECON 2302 Principles of Microeconomics

TOTAL CREDIT HOURS FOR GRADUATION – 120 HOURS

TOTAL ADVANCED HOURS – 52 HOURS (MINIMUM)

ADMISSION, PROGRESSION, AND GRADUATION REQUIREMENTS, if applicable:

Graduation requirements

1. In addition to the graduation requirements listed in the UTRGV 2018-2019 Undergraduate Catalog, demonstration of proficiency in a language other than English is required at the undergraduate level equivalent to a minimum of six credit hours. Proficiency can be demonstrated by a college credit exam, a placement test approved through the UTRGV Department of Writing and Language Studies, and/or up to six credit hours of college-level language coursework.