ENVIRONMENTAL SCIENCE
GRADUATE PROGRAM

2020-2021 Curriculum Guide for Master of Science degree program with a specialization in AGROECOSYSTEM SCIENCE

The whole-system approach to sustainable agriculture and food systems in the interdisciplinary area of agroecosystem sciences has research links in ecology, culture, economics, and society. This program is part of the Ohio State Environmental Sciences Graduate Program (ESGP).

Students admitted to the MS degree program are assigned a faculty advisor who will provide guidance throughout the program. Students are encouraged to get to know their advisor and meet with him/her at least twice each semester. This document serves as a resource to be used by the student and the advisor in planning a program with a specialization in AES, but is not inclusive of all important degree, college(s), and university requirements. All students are expected to be familiar with the *ESGP Handbook* https://esgp.osu.edu/sites/default/files/2020-08/esgp_handbook_2020-2021.pdf and with the *Graduate School Handbook* (available at http://www.gradsch.ohio-state.edu/).

PROGRAM OF STUDY

The MS-Agroecosystem Science curriculum consists of a minimum of 30 credits.

ESGP Required Courses (12 credits)

ENVSCI 7899	ESGP Seminar	1, 1, 1 (3 credits total)
Biological	Select from courses in Appendix	3 credits
Science Physical	Select from courses in Appendix	3 credits
Social Sciences & Policy	Select from courses in Appendix	3 credits

Agroecosystem Sciences Required Courses (5 credits)

Seminar		
Entomol 7890/ ENR8890.03/ EEOB 8896.04	Agroecosystems Special Topic	1, 1 (2 credits total)
Skills Courses:		
GEOG 5210	Fundamentals of Geographic Information Systems	3 credits

Electives (3 credits)

With advisor's guidance and approval, select from the following list of ESGP courses

AEDECON 6120	Applied Quantitative Methods II	4 credits
AEDECON 7120	Advanced Quantitative Methods II	3 credits
AEDECON 7130	Advanced Quantitative Methods III	3 credits
CIVILEN 5420	Remote Sensing of Environment	3 credits
ENVENG 7217	Applied Mathematical Ecology	3 credits
FABENG 3510	Introduction to Biological Engineering	4 credits

Research Credits (10 credits)

Research hours in advisor's home department	10 credits minimum

Grade Policy:

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In addition to the general Graduate School requirements of a cumulative grade point average of 3.0 or higher, students must meet specific college policies regarding grades in courses.

Support Staff

Environmental Sciences Graduate Program
(614) 292-9762/Smith Laboratory/174 W. 18th Ave/Columbus, Ohio/43210/esgp.osu.edu

Appendix

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Core and Elective Courses in Biological Sciences

The objective of this core course area is to ensure that students are familiar with the diversity and functioning of organisms and the interactions among species and between organisms and the environment. Because the environmental sciences focus on the relationships between living organisms and their environment, the basic principles of ecology and a solid understanding of ecosystems structure and function is the focus of the ESGP core. This understanding can be gained through coursework that focuses on a particular taxon or a particular kind of ecosystem but must be broadly applicable to any environment.

Environment and Natural Resources

ENR 5225	Ecosystems Modeling	3 credits	
ENR 5250.01 and 5250.02	Wetland Ecology Restoration and Wetland Field Laboratory	4 credits	AU
ENR 5263	Biology of Soil Ecosystems	3 credits	SP

Evolution, Ecology and Organismal Biology

EEOB 5470	Community and Ecosystem Ecology	3 credits	SP

Horticulture and Crop Science

HCS 5602	The Ecology of Agriculture	3 credits	AU

Core and Elective Courses in Physical Sciences

The objective of this core area is to provide an understanding of physical structure and processes in which ecosystems must function. Physical structure includes soil, water, air, geological media, climate, nutrients, and contaminants. Physical science processes include movement of "abiotic" matter and energy through ecosystems. Core courses must (1) study fundamental physical, hydrological, chemical, or biogeochemical processes and (2) study and emphasize the effects of physical structure and processes on ecosystem biotic components and function and the interactions between the biotic and abiotic components of the ecosystem.

Environment and Natural Resources

ENR 5222/FABENG 5310/ENVENG 5310	Ecological Engineering and Science	4 credits	SP

Food, Agriculture and Biological Engineering

FABENG 5310/ENR 5222/ENVENG 5180	Ecological Engineering and Science	4 credits	SP
FABENG 5320	Agroecosystems	3 credits	SP

Earth Science

EARTHSCI 5651	Hydrogeology	4 credits	AU

Core and Elective Courses in Social Sciences and Policy

The objective of the social science core is to provide an understanding of concepts related to the study of human society and/or individuals and their relationships to the structure and function of the ecosystem(s) of which they are a part. Methodology includes a range of approaches, both qualitative and quantitative. Core social science courses must engage social science in a combined theoretical and/or applied study of a physical, cultural, regulatory, or economic relationship between humans and the natural and physical environment.

Environment and Natural Resources

ENR 8350	Ecosystem Management Policy	3 credits	AU
RURLSOC 5530	Sociology of Agriculture and Food Systems	3 credits	AU
RURLSOC 7560	Environmental Sociology	3 credits	SP

Agricultural, Environmental and Developmental Economics

AED 5330	Benefit-Cost Analysis	3 credits	AU

City and Regional Planning

CRPLAN 6410	Planning for Sustainable Development	3 credits	AU

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Agroecosystem Sciences Faculty

Nick Basta
Steve Culman
Casey Hoy Reed
Johnson Rattan
Lal Jiyoung Lee
Berry Lyons
Andy May Mark
Moritz Larry
Phelan Virginia
Rich Mark Sulc

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