

## **Agroecosystems Science Specialization**

The whole-system approach to sustainable agricultural and food systems is the interdisciplinary area of agroecosystems sciences. Research links ecology, culture, economics and society.

Agroecosystems Science research areas can include:

- Local food system development, food system assessment and sustainability
- Watershed ecology and participatory water quality management programs
- Renewable energy from agroecosystems
- Sustainability science and policy

### **Specialization requirements:**

1. Work with an ESGP advisor and 1 other from the Agroecosystems Sciences faculty list
2. Complete the specialization course requirements
3. Conduct a research project in Agroecosystems topic

### **Agroecosystems faculty:**

GSC rep – Doug Doohan

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

**Agroecosystems Science coursework requirements:**

- All students specializing in Agroecosystems Science must take GEOG 5220
- MS: Take a total of three credits from each of the four focuses areas below.
- PhD: Take a total of six credits from each of the four focuses areas below.
- Both MS and PhD students are required to take two credits in special topics courses related to climate change

Requirement	Course number and title	Credit hours	Semester (to be) taken
Required course	<b>GEOG 5220</b> Fundamentals of GEO Info Systems *ESGP Core: Physical Science	3	
<b>Skills Courses</b>  Choose at least 3 (MS) or 6 (PhD) credits from the following:	<b>AEDECON 6120</b> Applied Quantitative Methods II	4	
	<b>AEDECON 7120</b> Advanced Quantitative Methods II	3	
	<b>AEDECON 7130</b> Advanced Quantitative Methods III	3	
	<b>CIVILEN 5420</b> Remote Sensing of Environment	3	
	<b>CIVILEN 5421</b> Spatial Analysis Techniques for Civil Engineering	3	
	<b>ENVENG 7217</b> Applied Mathematical Ecology *ESGP Core: Biological Sciences	4	
	<b>FABENG 3510</b> Introduction to Biological Engineering	4	
	<b>Skills total:</b>		
<b>Biological Sciences in Agricultural Ecology</b>  Choose at least 3 (MS) or 6 (PhD) credits of the following:	<b>EEOB 5470</b> Community and Ecosystem Ecology *ESGP Core: Biological Science	3	
	<b>HCS 5602</b> The Ecology of Agriculture *ESGP Core: Biological Science	3	
	<b>ENR 5263</b> Biology of Soil Ecosystems *ESGP Core: Biological Science	3	
	<b>ENR 5225</b> Ecosystem Modeling *ESGP Core: Biological Science	3	
	<b>ENR 5250.01</b>	3	

	Wetland Ecology Restoration *ESGP Core: Biological Science		
	<b>ENR 5250.02</b> Wetland Field Laboratory *ESGP Core: Biological Science	1	
	<b>Biological Sciences total:</b>		
<b>Physical Sciences in Agricultural Ecology</b>  Choose at least 3 (MS) or 6 (PhD) credits of the following:	<b>EARTHSC 5651</b> Hydrogeology *ESGP Core: Physical Science	4	
	<b>FABENG 5320</b> Agroecosystems *ESGP Core: Physical Science	3	
	<b>ENVENG 5180/FABENG 5310/ENR 5222</b> Ecological Engineering and Science *ESGP Core: Physical Science	4	
	<b>Physical Sciences total:</b>		
<b>Social Sciences and Policy Important in Agroecosystems Function and Change</b>  Choose at least 3 (MS) or 6 (PhD) credits of the following:	<b>AEDECON 5330</b> Benefit-Cost Analysis *ESGP Core: Social Science	3	
	<b>CRPLAN 6410</b> Planning for Sustainable Development *ESGP Core: Social Science	3	
	<b>ENR 8350</b> Ecosystem Management Policy *ESGP Core: Social Science	3	
	<b>RURLSOC 5530</b> Sociology of Agriculture and Food Systems *ESGP Core: Social Science	3	
	<b>RURLSOC 7560</b> Environmental Sociology *ESGP Core: Social Science	3	
	<b>Social Sciences total:</b>		
<b>Agroecosystems Special Topics</b>  Choose least 2 credits (MS and PhD)	<b>Entomol 7890/ENR 8890.03/EEOB 8896.04</b> Agroecosystems special topics		
	<b>Special Topics total:</b>		
	<b>ESGP 7899</b>	1	

<b>ESGP Seminar</b>  Three credits required (MS and PhD)	Current Issues in Environmental Science		
	<b>ESGP 7899</b> Current Issues in Environmental Science	1	
	<b>ESGP 7899</b> Current Issues in Environmental Science	1	
	<b>ESGP Seminar total:</b>		
	<b>Grand total:</b>		