MINOR IN AGRICULTURAL DATA SCIENCE

Students who complete the Agricultural Data Science Minor will learn to use some of the same data science and analytical skills as in the Data Science programs. However, their focus will be on implementation of these tools to identify important correlations and trends and to implement practical improvements and agricultural decisions that benefit food security and safety, as well as human and ecosystem well-being. They will gain practical experience through an internship where they will analyze and report on real-world data for a client. They will serve as a necessary bridge between agronomists, animal scientists, or agricultural economists and data scientists who design analytical tools. The primary needs for agricultural data science include improved crop management, risk assessment, animal health, soil health, resource optimization and environmental protection, supply chain management, predictive analytics, and unlocking the potential of urban farming. Agricultural data analysis is also required to mitigate the impact of global climate change, to improve ecosystem resiliency and climate change adaptation, and to maintain food safety and security.

Learning Objectives

Upon successful completion of this minor, students will be able to:

1. Describe tools and define vocabulary, and concepts for data analysis in agricultural systems to compare outcomes and solve problems related to decisions on agricultural production.
2. Describe how agricultural data are collected in labs, fields, production fields, and from consumers. Know how to design experiments, sampling protocols, and determine data types and formats to be used.
3. Identify tools, techniques, methods, computational platforms and resources for specific data and projects.
4. Interpret reports, charts, figures, maps, statistical tables to comprehend agricultural information.
5. Identify the issues, implications, and needs of data collection, use, and storage in agriculture.

Requirements Effective Fall 2024

Students must satisfactorily complete the total credits required for the minor. Minors and interdisciplinary minors require 12 or more upper-division (300- to 400-level) credits.

Additional coursework may be required due to prerequisites.

Code	Title	Credits
AB 415	Agricultural Data Science	3
BSPM 487	Internship	3
CS 152	Python for STEM	2-3
or CS 150B	Culture and Coding: Python (GT-AH3)	
DSCI 335	Inferential Reasoning in Data Analysis	3
SOCR 377/AB 377	Geographic Information Systems in Agriculture	3
STAT 158	Introduction to R Programming	1
STAT 301	Introduction to Applied Statistical Methods	3
or STAT 307	Introduction to Biostatistics	
or STAT 315	Intro to Theory and Practice of Statistics	
Electives (select a minimum of 4 credits with at least 3 credits from AB or BSPM list from the list below)		4
Program Total Credits:		**22-23**

Electives

Code	Title	Credits
AB 340	Insect Biotechnology	3
AB 451	Integrated Pest Management	3
AB 511	Microbiome of Plant Systems	3
ANEQ 420	Applied Nutrition--Computer Diet Formulation	3
ANEQ 505	Microbiome of Animal Systems	3
ANEQ 545	Molecular Methods in Animal Genetics	3
ANEQ 575	Computational Biology in Animal Breeding	3
AREC 305	Agricultural and Resource Enterprise Analysis	3
AREC 330	Data-Driven Ag and Res Econ Decision Making	3
AREC 335/ECON 335	Introduction to Econometrics	3
AREC 340/ECON 340	Introduction-Economics of Natural Resources	3
AREC 405	Agricultural Production Management	3
AREC 440	Advanced Environmental and Resource Economics	3
BSPM 361	Elements of Plant Pathology	3
BSPM 365	Integrated Tree Health Management	4
BSPM 528	Invasive Plants/Weeds—Ecosystems to Molecules	3
BZ 360	Bioinformatics and Genomics	4
HORT 330	Computers for Landscape Design	2
HORT 460/SOCR 460	Plant Breeding and Biotechnology	3
SOCR 401	Greenhouse Gas Mitigation, Land Use, and Mgmt	3
SOCR 425	Internet of Ag Things--Sensors and Data Lab	2
SOCR 475	Global Challenges in Plant and Soil Science	3