



## Bachelor of Science in Data Science - Computational Agriculture and Natural Resources

### Track 1: College of Agriculture and Life Sciences

The interdisciplinary Bachelor of Science in Data Science at MSU goes beyond data analytics and embraces a vision in which data become the power behind the digital transformation of every field of human endeavor. The Computational Agriculture and Natural Resources concentration will equip students for careers as data scientists in agricultural production, agricultural technology, agricultural finance, natural resource management, wildlife and fisheries science, plant science, and other related fields.

#### Freshman Year

Fall Semester		Spring Semester		
EN 1103	English Composition I	3	EN 1113 English Composition II	3
MA 1713	Calculus I	3	MA 1723 Calculus II	3
DSCI 2013	Data Science Literacy	3	PHI 1113 Intro to Logic	3
— —	Natural Science 1 + Lab	3	— — Natural Science 2 + Lab	3
— —	Fine Arts	3	CSE 1284 Introduction to Programming	4

#### Sophomore Year

Fall Semester		Spring Semester		
— —	Social Science	3	MA/ST 3123 Statistical Inference	3
MA 2733	Calculus III	3	MA 3113 Intro to Linear Algebra	3
DSCI 3013	Fundamentals of Data Acquisition	3	BIS 3233 Management Information Systems	3
DSCI 2012	Lab - Data Wrangling	2	DSCI 4013 Data Visualization	3
CSE 1384	Intermediate Programming	4	CSE 2383 Data Structures and Analysis of Algorithms	3

#### Junior Year

Fall Semester		Spring Semester		
CSE 2813	Discrete Structures	3	CSE 3763 Legal & Ethical Issues Computing	3
DSCI 3012	Lab - Desc., Analysis, Inference	2	CO 1003 Fundamentals of Public Speaking	3
DSCI 3022	Lab - Data Visualization	2	DSCI 3032 Lab - Artificial Intelligence	2
AEC 2713	*Intro to Food and Resource Economics	3	CSE 4503 Database Management Systems	3
CSE 4633	Artificial Intelligence	3	WFA 3133 **Applied Ecology	3
— —	Humanities	3	DSCI 2022 Lab - Cloud, Quantum, HPC	2

#### Senior Year

Fall Semester		Spring Semester		
MGT 3213	Organizational Communication	3	MA/ST 4523 Intro to Probability	3
AEC 2223	***Intro to Sustainability Economics	3	AEC 4133 ****Analysis of Food Markets and Prices	3
ADS 3013	***Anatomy and Physiology	3	AEC 4223 ****Applied Quantitative Analysis in Agricultural Economics	3
ABE 2843	****Land Surveying	3	AEC 4363 ****Economics of Precision Agriculture	3
DSCI 4553	Capstone 1	3	DSCI 4663 Capstone 2	3

Revised 1.19.23

**\*Choose 1 course from the following list:**

AEC 2713 Intro to Food and Resource Economics  
ABE 1863 Engineering Technology in Agriculture  
BCH 4013 Principles of Biochemistry  
PSS 1313 Plant Science  
ADS 1113 Animal Science

**\*\*Choose 1 course from the following list:**

SBP 1103 Intro to Sustainable Bioproducts  
WFA 3133 Applied Ecology  
FO 4123 Forest Ecology

**\*\*\*Choose 6 credit hours from the following list:**

EC 2113 Principles of Macroeconomics  
EC 3123 Intermediate Microeconomics  
AEC 2223 Intro to Sustainability Economics  
AEC 3133 Intro to Agribusiness Management  
AEC 3233 Intro to Environmental Economics and Policy  
AEC 4123 Financial and Commodity Futures Marketing  
ABE 2173 Principles of Agricultural and Off-Road Machines  
ABE 2543 Precision Agriculture I  
ABE 4543 Precision Agriculture II  
BCH 3102 Essential Biochemical Concepts and Analysis  
BCH 4414 Protein Methods  
ADS 3013 Anatomy and Physiology  
ADS 3313 Intro to Meat Science

**\*\*\*\*Choose 12 credit hours from the following list:**

AEC 4133	Analysis of Food Markets and Prices	ABE 4163	Machine Management Agro-Ecosystems
AEC 4223	Applied Quantitative Analysis in Agricultural Economics	ABE 4263	Soil and Water Management
AEC 4363	Economics of Precision Agriculture	ABE 4463	Intro to Imaging in Biological Systems
AEC 4413	Public Problems of Agriculture	ABE 4483	Intro to Remote Sensing Technologies
AEC 4733	Econometric Analysis in Agricultural Economics	BCH 4803	Integrative Protein Evolution
ABE 2873	Land Surveying	PSS 4483	Intro to Remote Sensing Technologies
ABE 3513	The GPS and GIS in Agriculture and Engineering	ADS 4523	Internet Based Management in Livestock Industries