Precision Agriculture Technology & Management

Department Information

- **Department Web Site:**
  www.ndsu.edu/aben/ (http://www.ndsu.edu/aben/)
- **Credential Offered:**
  B.S.
- **Program Overview:**
  catalog.ndsu.edu/programs-study/undergraduate/precision-agriculture/ (http://catalog.ndsu.edu/programs-study/undergraduate/precision-agriculture/)

Major Requirements

Major: Precision Agriculture Technology & Management

Degree Type: Bachelor of Science (B.S.)
Minimum Degree Credits to Graduate: 120

University Degree Requirements

1. Satisfactory completion of all requirements of the curriculum in which one is enrolled.
2. Earn a minimum total of 120 credits in approved coursework. Some academic programs exceed this minimum.
3. Satisfactory completion of the general education requirements as specified by the university.
4. A minimum institutional GPA of 2.00 based on work taken at NDSU.
5. At least 30 credits must be NDSU resident credits. Resident credits include credits registered and paid for at NDSU.
6. At least 36 credits presented for graduation must be in courses numbered 300 or higher.
7. Students presenting transfer credit must meet the NDSU residence credits and the minimum upper level credit. Of the 30 credits earned in residence, a minimum of 15 semester credits must be in courses numbered 300 or above, and 15 semester credits must be in the student's curricula for their declared major.

For complete information, please refer to the Degree and Graduation Requirements (http://catalog.ndsu.edu/past-bulletin-archive/2024-25/academic-policies/undergraduate-policies/degree-and-graduation/) section of this Bulletin.

University General Education Requirements

A list of university approved general education courses and administrative policies are available here (http://catalog.ndsu.edu/past-bulletin-archive/2024-25/academic-policies/undergraduate-policies/general-education/#genedcoursestext).

Code	Title	Credits
Category C: Communication		**12**
ENGL 110	College Composition I	
ENGL 120	College Composition II	
COMM 110	Fundamentals of Public Speaking	
Upper Division Writing †		
Category R: Quantitative Reasoning †		**3**
Category S: Science and Technology †		**10**
Category A: Humanities and Fine Arts †		**6**
Category B: Social and Behavioral Sciences †		**6**
Category W: Wellness †		**2**
Category D: Cultural Diversity *†		
Category G: Global Perspectives *†		
Total Credits		**39**

*
Courses for category D & G are satisfied by completing D & G designated courses in another general education category.

†
General education courses may be used to satisfy requirements for both general education and the major, minor, and program emphases, where applicable. Students should carefully review major requirements to determine if specific courses can also satisfy these general education categories.

Precision Agriculture Technology & Management Major

Code	Title	Credits
Core Requirements		
AGEC 242	Introduction to Agricultural Management	3
ASM 225	Computer Applications in Agricultural Systems Management	3
ASM 354	Electricity and Electronic Applications	3
ASM 348	Agricultural Technology Exposition	1
or PAG 348	Agricultural Technology Exposition	
ASM 378	Machinery Principles and Management	3
ASM 475	Management of Agricultural Systems (Capstone)	2
or PAG 475	Precision Ag Systems Capstone	
CSCI 114	Computer Applications	3
or TL 116	Business Software Applications	
CHEM 121	General Chemistry I	3
MATH 103	College Algebra	3
PAG 115	Introduction to Precision Agriculture	2
PHYS 120	Fundamentals of Physics	3
PHYS 120L	Fundamentals of Physics Laboratory	1
or CHEM 121L	General Chemistry I Laboratory	
STAT 330	Introductory Statistics	3
Option Requirement		
Select one option to complete this major: Precision Agriculture or Agricultural Technology		51 or 56
Total Credits		**84-89**

Precision agriculture option

Code	Title	Credits
Precision Ag Option [1]		
PAG 115L	Introduction to Precision Agriculture Lab	1
PAG 215	Mapping of Precision Ag Data	3
PAG 315	Electronic Systems in Precision Ag	3
PAG 454	Applications of Precision Agriculture	3
PAG 496	Field Experience/Practicum (Internship)	1
GEOG 455	Introduction to Geographic Information Systems	4
PLSC 110	World Food Crops	3
or ANSC 114	Introduction to Animal Sciences	
PPTH 324	Introductory Plant Pathology	3
or ANSC 218	Anatomy and Physiology of Domestic Animals	
PLSC 225	Principles of Crop Production	3
or ANSC 220	Livestock Production	
SOIL 210	Introduction to Soil Science	3
or ANSC 223	Introduction to Animal Nutrition	
SOIL 322	Soil Fertility and Fertilizers	3
or ANSC 240	Meat Animal Evaluation and Marketing	
Option Electives		
Select 21 credits from the Program Option Electives list below.		21
Total Credits		**51**

Agricultural Technology Option

Code	Title	Credits
Agricultural Technology Option [1]		
ASM 115	Fundamentals of Agricultural Systems Management	3
ASM 125	Fabrication & Construction Technology	3
ASM 264	Natural Resource Management Systems	3
ASM 264L	Natural Resource Management Systems Laboratory	1
ASM 323	Post-Harvest Technology	3
ASM 373	Tractors & Power Units	3
ASM 374	Power Units Laboratory	1
ASM 429	Hydraulic Power Principles and Applications	3
ACCT 102	Fundamentals of Accounting	3
ECON 201	Principles of Microeconomics	3
ECON 202	Principles of Macroeconomics	3
Option Electives		
Select 27 credits from the Program Option Electives list below.		27
Total Credits		**56**

Program OPTION ELECTIVES

Code	Title	Credits
Please select the appropriate number of elective credits for your option from the list below. [2]		
ACCT 201	Elements of Accounting II	3
AGEC 244	Agricultural Marketing	3
AGEC 246	Introduction to Agricultural Finance	3
ANSC 114	Introduction to Animal Sciences	3
ANSC 218	Anatomy and Physiology of Domestic Animals	3
ANSC 220	Livestock Production	3
ANSC 232	Dairy Cattle Evaluation	2
ANSC 240	Meat Animal Evaluation and Marketing	3
ANSC 323	Fundamentals of Nutrition	3
ANSC 330	Competitive Meat Grading and Evaluation	2
ANSC 331	Competitive Livestock Evaluation	2
ANSC 357	Animal Genetics	3
ANSC 463	Physiology of Reproduction	3
ASM 115	Fundamentals of Agricultural Systems Management	3
ASM 125	Fabrication & Construction Technology	3
ASM 234	3D Printing and Manufacturing	2
ASM 264	Natural Resource Management Systems	3
ASM 264L	Natural Resource Management Systems Laboratory	1
ASM 373	Tractors & Power Units	3
ASM 374	Power Units Laboratory	1
ASM 429	Hydraulic Power Principles and Applications	3
BIOL 150	General Biology I	3
BIOL 150L	General Biology I Laboratory	1
BUSN 340	International Business	3
BUSN 487	Managerial Economics	3
COMM 212	Interpersonal Communication	3
COMM 216	Intercultural Communication	3
COMM 308	Business and Professional Speaking	3
CSCI 479	Introduction to Data Mining	3
ECON 105	Elements of Economics	3
ECON 341	Intermediate Microeconomics	3

ECON 343	Intermediate Macroeconomics	3
ENT 210	Insects, Humans and the Environment	3
ENT 350	General Entomology	3
ENT 470	Insect Ecology	3
FIN 320	Principles of Finance	3
GEOG 105	Fundamentals of Geographic Information Systems	3
GEOG 455	Introduction to Geographic Information Systems	4
GEOG 456	Advanced Geographic Information Systems	3
GEOG 470	Remote Sensing	3
GEOG 480	Geographic Information Systems Pattern Analysis and Modeling	3
IME 335	Welding Technology	3
MGMT 320	Foundations of Management	3
MRKT 320	Foundations of Marketing	3
ME 311	Introduction To Aviation	3
ME 312	Introduction to Flight	2
ME 313	Commercial Instrument Ground School	3
NRM 452	Managing Natural and Rangeland Resources using GIS	3
PLSC 110	World Food Crops	3
PLSC 215	Weed Identification	1
PLSC 225	Principles of Crop Production	3
PLSC 315	Genetics	3
PLSC 315L	Genetics Laboratory	1
PLSC 320		3
PLSC 323	Principles of Weed Science	3
PAG 115L	Introduction to Precision Agriculture Lab	1
PAG 215	Mapping of Precision Ag Data	3
PAG 315	Electronic Systems in Precision Ag	3
PAG 454	Applications of Precision Agriculture	3
PPTH 324	Introductory Plant Pathology	3
PPTH 454	Diseases Of Field and Forage Crops	3
SOIL 210	Introduction to Soil Science	3
SOIL 217	Introduction to Meteorology & Climatology	3
SOIL 322	Soil Fertility and Fertilizers	3
SOIL 351	Soil Ecology	3
SOIL 410	Soils and Land Use	3
SOIL 433	Soil Ecohydrology and Physics	3
SOIL 444	Soil Genesis and Survey	3
SOIL 447	Microclimatology	3
SOIL 465	Soil And Plant Analysis	3

[1]

Courses required in either option may be used as electives in the other option.

[2]

In consultation with your advisor, courses not appearing on the list that are intended to be used in this area require a substitution form to be submitted to the Office of Registration and Records by the student's advisor during the term in which the student completes the course.

Minor Requirements

Minor: Precision Agriculture

Required Credits: 17

Code	Title	Credits
Required Courses		
PAG 115	Introduction to Precision Agriculture	2

PAG 215	Mapping of Precision Ag Data	3
PAG 454	Applications of Precision Agriculture	3
GEOG 105	Fundamentals of Geographic Information Systems	3
Elective Courses - Select 6 credits from the following:		**6**
ABEN 358	Electric Energy Application in Agriculture	
ABEN 377	Numerical Modeling in Agricultural and Biosystems Engineering	
ABEN 444	Transport Processes	
ABEN 452	Bioenvironmental Systems Design	
ABEN 456	Biobased Energy	
ABEN 464	Resource Conservation and Irrigation Engineering	
ABEN 473	Agricultural Power	
ABEN 478	Machinery Analysis & Design	
ABEN 479	Fluid Power Systems Design	
ABEN 482	Instrumentation & Measurements	
AGEC 244	Agricultural Marketing	
AGEC 246	Introduction to Agricultural Finance	
AGEC 342	Farm and Agribusiness Management II	
AGEC 350	Agrisales	
ANSC 114	Introduction to Animal Sciences	
ASM 264	Natural Resource Management Systems	
ASM 354	Electricity and Electronic Applications	
ASM 378	Machinery Principles and Management	
ASM 429	Hydraulic Power Principles and Applications	
BIOL 150	General Biology I	
BIOL 150L	General Biology I Laboratory	
CSCI 479	Introduction to Data Mining	
GEOG 455	Introduction to Geographic Information Systems	
GEOG 456	Advanced Geographic Information Systems	
GEOG 470	Remote Sensing	
GEOG 480	Geographic Information Systems Pattern Analysis and Modeling	
ME 311	Introduction To Aviation	
ME 312	Introduction to Flight	
ME 313	Commercial Instrument Ground School	
PAG 115L	Introduction to Precision Agriculture Lab	
PAG 315	Electronic Systems in Precision Ag	
PAG 455	Applications of Big Data in Precision Agriculture	
PAG 475	Precision Ag Systems Capstone	
PLSC 225	Principles of Crop Production	
NRM 453	Rangeland Resources Watershed Management	
SOIL 217	Introduction to Meteorology & Climatology	
SOIL 322	Soil Fertility and Fertilizers	
Total Credits		**17**

Minor Requirements and Notes:

- A minimum of 8 credits must be taken at NDSU.
- Students must earn a minimum 2.00 GPA for the minor requirements.