

# Precision Agriculture Technology & Management

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## Department Information

- **Department Web Site:**  
[www.ndsu.edu/aben/](http://www.ndsu.edu/aben/) (<http://www.ndsu.edu/aben/>)
- **Credential Offered:**  
B.S.
- **Official Program Curriculum:**  
[catalog.ndsu.edu/undergraduate/program-curriculum/precision-agriculture/](http://catalog.ndsu.edu/undergraduate/program-curriculum/precision-agriculture/) (<http://catalog.ndsu.edu/undergraduate/program-curriculum/precision-agriculture/>)

## The Program

The Precision Agricultural Technology & Management (PATM) program combines an understanding of farming, agricultural economics, business and sciences, managerial and technical skills. This understanding of agricultural science, technology, and related practices, including unmanned aerial systems (drones), remote sensing, artificial intelligence, machine learning, sensors, robotic applications, cloud computing, big data management, and site-specific resources management is a crucial component of modern agriculture. Students will learn how to use the applications that are commonly needed to produce and process food, feed, fiber and fuel, as well as how to market, conduct sales and distribute agricultural products and services. Graduates enter the job market ready to meet the needs of their employer and clients that need help managing precision agricultural technology.

The Precision Agricultural Technology & Management (PATM) program in the Department of Agricultural and Biosystems Engineering has two emphasis areas:

- Precision Agriculture (PAG)
- Agricultural Technology (ATM)

Both emphasis areas lead to a Bachelor of Science degree in Precision Agricultural Technology and Management.

## internships

The curriculum requires at least one internship, but students are highly encouraged to take advantage of as many internship opportunities as they wish, especially co-operative education experiences (paid internships). These are great opportunities for students to gain hands-on experience working with precision agriculture technologies. In addition, internship experiences allow students to make more informed decisions regarding their major, to make better selection of elective courses, and open doors for employment upon graduation.

## Career opportunities

Opportunities for PATM graduates are many and diverse. Graduates may, for example, be employed by companies providing equipment and technical services related to precision agriculture, such as Titan Machinery, RDO Equipment, FarmersEdge, IntelligentAg, and John Deere. The adoption of aerial remote sensing and artificial intelligence is on the rise in both private and public sectors, which creates new employment opportunities for PAG graduates. In addition, one always can start his/her own business as a private consultant on precision agriculture. Graduates in our Agriculture Technology option find successes with companies such as Pioneer, ADM, RDO Equipment, and Titan Machinery as Business Managers, Elevator Majors, and Agronomist.

## Scholarships

Several scholarships are available through the department. These scholarships range from \$500 to \$4,500. Students also may be eligible for scholarships from the College of Agriculture, Food Systems, and Natural Resources.

## A well equipped teaching facility

The PATM degree program is housed in Ladd Hall and the NDSU Pilot Plant West which includes offices, classrooms and laboratories. Laboratories are furnished with equipment typical of that used in industry and research, such as personal computers with software used to manipulate and to write prescriptions to field equipment, several models of unmanned aerial systems (drones), a variety of sensors/cameras (RGB, multispectral, and hyperspectral) mounted to drones and to benches in the lab, tractors, engines, surveying equipment, etc. Faculty expertise varies across a wide and diverse range of specialties related to agricultural and biological systems.

## Common Job Outcomes - PAG

- Drone Operator
- Engineering Technician
- Agricultural Crop Consultant

- Technical Support Specialist
- Sales Manager

## Common Job Outcomes - ATM

- Farm Owner/Manager
- Plant Manager
- Agricultural Sales
- Grain Cooperative Manager
- Grain Merchandiser
- Engineering Technician
- Irrigation Manager
- Production Supervisor
- Agricultural Crop Consultant
- Technical Support Specialist
- Sales Manager
- Farm Credit Analyst

## Sample Program Guide

IMPORTANT DISCLAIMER: This guide is not an official curriculum. This guide is a sample four-year degree plan of how students might plan this major with other degree requirements to complete their education in four years. Student plans will vary from this sample due to a variety of factors, such as, but not limited to, start year, education goals, transfer credit, and course availability. To ensure proper degree completion, enrolled students should utilize Degree Map (<https://www.ndsu.edu/registrar/degreemap/>) and Schedule Planner (<https://www.ndsu.edu/onestop/degree-map-and-planning/>) in Campus Connection and consult regularly with academic advisors to ensure graduation requirements are being met.

## Precision Agriculture Sample Program Guide

Freshman					
Fall	Credits	Spring	Credits		
PAG 115		2 CSCI 114 or TL 116	3		
PAG 115L		1 ENGL 120	3		
ENGL 110		3 PHYS 120	3		
COMM 110		3 SOIL 210 or ANSC 223	3		
MATH 103		3 Program Elective	3		
PLSC 110 or ANSC 114		3			
		<b>15</b>	<b>15</b>		
Sophomore					
Fall	Credits	Spring	Credits	Summer	Credits
ASM 225		3 PAG 315		3 PAG 496:: Field Exp./ Internship	1
CHEM 121		3 PAG 348		1	
CHEM 121L or PHYS 120L		1 SOIL 322 or ANSC 240		3	
PAG 215		3 PLSC 225 or ANSC 220		3	
GEOG 455		4 Gen Ed Soc & Behav Sci		3	
		Program Elective		3	
		<b>14</b>	<b>16</b>		<b>1</b>
Junior					
Fall	Credits	Spring	Credits		
ASM 354		3 PAG 454	3		
AGEC 242		3 ASM 429	3		
PPTH 324 or ANSC 218		3 ENGL 320, 321, 324, or 459	3		
Gen Ed Hum & FA/Cult Div		3 Gen Ed Wellness	2		

Program Elective	3	Program Elective	3
	<b>15</b>		<b>14</b>
<b>Senior</b>			
<b>Fall</b>	<b>Credits</b>	<b>Spring</b>	<b>Credits</b>
ASM 378		3 PAG 475	2
STAT 330		3 Gen Ed Soc & Behav Sci	3
Gen Ed Hum & FA/Glob Persp		3 Free Elective	10
Program Elective	6		
	<b>15</b>		<b>15</b>

**Total Credits: 120**

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## Agriculture Technology Sample Program Guide

<b>Freshman</b>			
<b>Fall</b>	<b>Credits</b>	<b>Spring</b>	<b>Credits</b>
ASM 115		3 ACCT 102	3
ASM 125		3 COMM 110	3
PAG 115		2 CSCI 114 or TL 116	3
ENGL 110		3 ENGL 120	3
MATH 103		3 Gen Ed Hum & Fine Arts/Cult Div	3
		<b>14</b>	<b>15</b>
<b>Sophomore</b>			
<b>Fall</b>	<b>Credits</b>	<b>Spring</b>	<b>Credits</b>
ASM 225		3 ASM 264	3
AGEC 242		3 ASM 264L	1
ECON 201		3 ASM 348	1
PHYS 120		3 ECON 202	3
PHYS 120L or CHEM 121L		1 Program Elective	3
Program Elective		3 Free Elective	4
		<b>16</b>	<b>15</b>
<b>Junior</b>			
<b>Fall</b>	<b>Credits</b>	<b>Spring</b>	<b>Credits</b>
ASM 323		3 ASM 373	3
CHEM 121		3 ASM 374	1
STAT 330		3 ENGL 320, 321, 324, or 459	3
Gen Ed Wellness		2 Program Elective	3
Program Elective		3 Free Elective	4
		<b>14</b>	<b>14</b>

<b>Senior</b>			
<b>Fall</b>	<b>Credits</b>	<b>Spring</b>	<b>Credits</b>
ASM 354		3 ASM 429	3
ASM 378		3 ASM 475	2
Gen Ed Hum & Fine Arts		3 Program Elective	9
Program Elective		6 Free Elective	3
		<b>15</b>	<b>17</b>
<b>Total Credits: 120</b>			