Precision Agriculture

Department Information

- **Department Location:**
  100 Agricultural and Biosystems Engineering
- **Department Phone:**
  701-231-7261
- **Department Email:**
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- **Department Web Site:**
  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/)

A focused in-depth education in sciences, technologies and practices, including unmanned aerial systems (drones), remote sensing, acritical intelligence, machine learning, sensors, robotic applications, cloud computing, big data management, and site-specific resources management, awaits students in the precision agriculture (PAG) field. We prepare our graduates to apply their knowledge and skills to address profitability, production efficiency, and environmental stewardship related to modern high-tech agricultural production systems.

The Program

The PAG major in the College of Agriculture, Food Systems, and Natural Resources is administered by the Department of Agricultural and Biosystems Engineering. The PAG program leads to a Bachelor of Science degree and includes core requirements in mathematics, communications, sciences, humanities and social sciences. In the major, students will complete technical courses in machine principles, data mapping, electrical systems and electronics, crop production principles, computer applications for precision agriculture, remote sensing, data management, site-specific agriculture, and information/decision support technology. The curriculum balances instruction in agricultural sciences principles with hands-on training and application of technology. A degree is awarded after completion of a minimum of 120 credits.

The PAG major curriculum provides opportunities for individuals from both rural and urban backgrounds to choose courses to meet personal career objectives. Minors may be developed in related fields of production agriculture, agribusiness or in fields that add curriculum diversity, e.g., international studies, communication, natural resources management, business administration, accounting, or industrial 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 PAG 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, InteligentAg,, 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.

Scholarships

Several scholarships are available through the department. These scholarships range from $300 to $4,000. Students also may be eligible for scholarships from the College of Agriculture, Food Systems, and Natural Resources.

Extra-Curricular Activities

The Precision Ag Club offers students opportunities to participate in professional and social activities with other students at the local and regional levels. Being an active participant in student organizations helps students develop leadership, teamwork, organization and communication skills.

A well equipped teaching facility

The PAG degree program is housed in the Agricultural and Biosystems Engineering building which includes offices, classrooms, and laboratories. Laboratories are equiped with state-of-the-art equipment typically 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 (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.