

Precision Agriculture (PAG)

PAG 115L. Introduction to Precision Agriculture Lab. 1 Credit.

This laboratory course is designed to teach students Precision Ag hands on experiences include drone flying, precision ag mapping, field visit and ag robotic demonstration. Co-req: PAG 115.

PAG 115. Introduction to Precision Agriculture. 2 Credits.

This course is designed to introduce the student to a broader view of the precision agriculture, crop and livestock production in precision agriculture, fundamental concepts of GIS, GPS, sensors, drones, data acquisition and management, Remote sensing. The course is offered in 2 fifty minute lectures per week. Co-req: MATH 103.

PAG 125. Fabrication & Construction Technology. 3 Credits.

Introduction to materials, methods, and tools used in fabrication, installation, and maintenance of agricultural production and processing facilities. 2 lectures, 1 three-hour laboratory.

PAG 191. Seminar. 1-5 Credits.

PAG 215. Mapping of Precision Ag Data. 3 Credits.

The course is designed to introduce students to currently technologies and software solutions being used for data collection, storage, and analysis to support more informed crop management decisions. The course is offered as two 50-minute lectures and one 2-hour lab per week. Prereq: AGT 115.

PAG 225. Computer Applications in Agricultural Systems Management. 3 Credits.

Application and use of software for problem solving, reporting, and graphical communication. 2 lectures. Prereq: CSCI 114 or TL 116; and MATH 103 or higher.

PAG 234. 3D Printing and Manufacturing. 2 Credits.

3D or Additive Manufacturing is quickly taking over the more traditional ways of making things through subtractive manufacturing methods. 3D printing is making more and more of the proto types, parts, and products we use everyday in a quicker, more responsible way. This course will explore how 3D printing started, generative design, how to 3D print, and how is it currently being used in industry. Students in this class will utilize 3D printers, scanners, and laser cutters to gain hands on experience in the world of 3D manufacturing and tour local 3D companies to see real life manufacturing in progress.

PAG 264L. Natural Resource Management Systems Laboratory. 1 Credit.

Laboratory to complement concepts introduced in ASM 264. Topics include land survey, maps, rainfall and runoff, erosion control, drainage and irrigation, and costs and returns. Coreq: AGT 264 or NRM 264 or SOIL 264. Prereq or Coreq: Must be PATM or AGT majors only.

PAG 264. Natural Resource Management Systems. 3 Credits.

General principles of natural resource management, including soil and water conservation, soil and wind erosion, use of tillage and vegetation for conservation, drainage, irrigation, and soil and water quality. 3 lectures. Prereq: MATH 103, MATH 104 or MATH 107. Cross-listed with NRM 264 and SOIL 264.

PAG 291. Seminar. 1-5 Credits.

Seminar.

PAG 315. Electronic Systems in Precision Ag. 3 Credits.

This course is designed to introduce the student to understand the basics of electronic systems and applications in precision ag. The students will learn topics like signal processing, electric motor, serial control and communications data network for tractors and machinery for agriculture applications. The course is offered in two 50 mins lectures and one 100 mins laboratory per week. Prereq: PAG 215 and PHYS 120.

PAG 323. Post-Harvest Technology. 3 Credits.

Principles and management of crop and feed storage, handling, drying, processing, and crop/feed systems siting, planning, and development. 3 lectures. Prereq: MATH 103 or MATH 104.

PAG 348. Agricultural Technology Exposition. 1 Credit.

This course provides understanding of showing and explaining the latest innovations in agricultural technology. Students practice good communication skills and learn task management for completion of a project. Higher level thinking skills are used and demonstrated through preparing displays for public viewing and interaction. May be repeated for credit.

PAG 354. Electricity and Electronic Applications. 3 Credits.

Fundamentals and applications of electricity, power distribution, controls, motors, and solid-state electronics. For non-engineering majors. 2 lectures, 1 three-hour laboratory. Prereq: Junior standing, MATH 103 or MATH 104.

PAG 368. Structures and Environment Systems. 3 Credits.

Study of environmental needs of animals and bioproducts, control of building environments, construction materials, framing systems, and functional planning for biosystem structures. 3 lectures. Prereq: MATH 103 or MATH 104.

PAG 373. Tractors & Power Units. 3 Credits.

Theory and principles of operation, use, maintenance, repair, and selection of tractors and power systems. Includes engines, transmissions, fuel, lubrication, hydraulics, traction, and electrical systems. 3 lectures. Prereq: MATH 103 or MATH 104.

PAG 374. Power Units Laboratory. 1 Credit.

Laboratory to complement concepts introduced in ASM 373. Topics include engine systems, operation, adjustment, maintenance, repair, measurement, and testing. 1 three-hour laboratory. Prereq: MATH 103 or 104.

PAG 378. Machinery Principles and Management. 3 Credits.

Principles of agricultural machinery manufacture, sales, operation, and management. Topics include selection, replacement, operation, application, and maintenance. 2 lectures, 1 three-hour laboratory. Prereq: MATH 103 or MATH 104.

PAG 394. Individual Study. 1-5 Credits.

PAG 429. Hydraulic Power Principles and Applications. 3 Credits.

Study of fluid power principles, components, schematics, and systems. Emphasis is on proper use, maintenance, and applications of hydraulic power equipment. Prereq: Junior standing. Co-req: PHYS 120.

PAG 454. Applications of Precision Agriculture. 3 Credits.

The course is designed to introduce students to current technologies that are being used for crop production, and how to use the data collected by them to make more informed crop management decisions. The course is offered as two 50-minute lectures and one lab meeting per week. Prereq: AGT 215. Dual-listing: AGT 654.

PAG 455. Applications of Big Data in Precision Agriculture. 3 Credits.

The course is designed to introduce students to basics concepts regarding big data, how big data relates to precision agriculture, and how big data analysis approaches are using precision agriculture related data to enhance crop management and production. The course is offered as two 50-minute lectures and a 2.5 hour lab per week. Prereq: AGT 454.

PAG 475. Precision Ag Systems Capstone. 2 Credits.

Capstone learning experience involving team solutions to relevant problems in precision agriculture, which involves project planning and execution, including technical communication, budgeting, team management, and timelines. Emphasis will be on the team management, professionalism, communication skills, formal written report, and formal oral presentation. Prereq: AGT 315, AGT 454 and senior standing.

PAG 493. Undergraduate Research. 1-5 Credits.

PAG 494. Individual Study. 1-5 Credits.

PAG 496. Field Experience/Practicum. 1-15 Credits.

PAG 654. Applications of Precision Agriculture. 3 Credits.

The course is designed to introduce students to current technologies that are being used for crop production, and how to use the data collected by them to make more informed crop management decisions. The course is offered as two 50-minute lectures and one lab meeting per week. Dual-listing: AGT 454.

PAG 690. Seminar. 1-5 Credits.

PAG 794. Practicum/Internship. 1-8 Credits.

PAG 795. Field Experience. 1-15 Credits.