

Agricultural Systems Management (ASM)

ASM 115. Fundamentals of Agricultural Systems Management. 3 Credits.

Overview of agricultural systems management; engines, machinery, structures, electricity, processing, and conservation. 3 lectures. Co-req: MATH 103 or MATH 104 or MATH 107 or placement.

ASM 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.

ASM 194. Individual Study. 1-3 Credits.**ASM 196. Field Experience. 1-15 Credits.****ASM 199. Special Topics. 1-5 Credits.****ASM 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 CSCI 116 or MIS 116. Co-req: MATH 105, MATH 107 or MATH 146.

ASM 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.

ASM 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. Co-req: ASM 264 or NRM 264 or SOIL 264. Prereq: Students must be ASM majors only.

ASM 291. Seminar. 1-3 Credits.**ASM 292. Global Practicum: Study Abroad. 1-15 Credits.**

Pre-Arranged study at accredited foreign institutions (study abroad), domestic institutions (National Student Exchange) or on approved study abroad programs. Pre-requisite: Sophomore standing and prior approval by International Student and Study Abroad Services and major department. Graded 'P' or 'F' (Undergraduate), or 'S' or 'U' (Graduate).

ASM 294. Individual Study. 1-5 Credits.**ASM 299. Special Topics. 1-5 Credits.****ASM 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.

ASM 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.

ASM 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.

ASM 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.

ASM 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.

ASM 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.

ASM 379. Global Seminar. 1-6 Credits.

NDSU instructed experience or field study in a foreign country. Conducted in English for residence credit. Pre-requisite: Prior approval by International Student and Study Abroad Services and major department. May be repeated. Standard Grading.

ASM 391. Seminar. 1-3 Credits.

ASM 392. Global Practicum: Study Abroad. 1-15 Credits.

Pre-Arranged study at accredited foreign institutions (study abroad), domestic institutions (National Student Exchange) or on approved study abroad programs. Pre-requisite: Sophomore standing and prior approval by International Student and Study Abroad Services and major department. Graded 'P' or 'F' (Undergraduate), or 'S' or 'U' (Graduate).

ASM 394. Individual Study. 1-5 Credits.

ASM 396. Field Experience. 1-15 Credits.

ASM 397. Fe/Coop/Internship. 1-4 Credits.

ASM 399. Special Topics. 1-5 Credits.

ASM 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 211.

ASM 454. Principles and Application of Precision Agriculture. 3 Credits.

Principles and application of precision agriculture including yield monitoring systems, variable rate technology, GIS, GPS, sensors, auto guidance, data acquisition and management, mapping and equipment management. 2 lectures, 1 three-hour laboratory. Prereq: MATH 103, MATH 104, or MATH 107. {Also offered for graduate credit - see ASM 654.}.

ASM 455. Data Management in Precision Agriculture. 3 Credits.

This course demonstrates the importance of data management in precision agriculture including data sources, acquisition, analysis and interpretation. Sources include yield monitoring, imagery, soil and crop sensors and machine performance through telemetry. Storage, display, mapping and data use. 3 lectures. Prereq: MATH 103 or higher. {Also offered for graduate credit - See ASM 655.}.

ASM 468. Landscape Irrigation Design. 2 Credits.

Students will learn the basic issues of water resources, water management, and irrigation system design. 2 lectures. Prereq: Junior standing. Cross-listed with PLSC 468. F (odd years).

ASM 469. Landscape Irrigation Installation and Management. 2 Credits.

Irrigation system installation, winterization, start-up, troubleshooting, renovation, and drainage. 2 lectures. Prereq: Junior standing. Cross-listed with PLSC 469. S (even years).

ASM 475. Management of Agricultural Systems. 2 Credits.

Capstone learning experience involving team solution to problems in agricultural systems management. Oral and written communications are emphasized. 2 lectures. Prereq: Senior standing. {Also offered for graduate credit - see ASM 675.}.

ASM 491. Seminar. 1-5 Credits.

ASM 492. Global Practicum: Study Abroad. 1-15 Credits.

Pre-Arranged study at accredited foreign institutions (study abroad), domestic institutions (National Student Exchange) or on approved study abroad programs. Pre-requisite: Sophomore standing and prior approval by International Student and Study Abroad Services and major department. Graded 'P' or 'F' (Undergraduate), or 'S' or 'U' (Graduate).

ASM 494. Individual Study. 1-5 Credits.

ASM 496. Field Experience. 1-15 Credits.

ASM 499. Special Topics. 1-5 Credits.

ASM 654. Principles and Application of Precision Agriculture. 3 Credits.

Principles and application of precision agriculture including yield monitoring systems, variable rate technology, GIS, GPS, sensors, auto guidance, data acquisition and management, mapping and equipment management. 2 lectures, 1 three-hour laboratory. {Also offered for undergraduate credit - see ASM 454.}.

ASM 655. Data Management in Precision Agriculture. 3 Credits.

This course demonstrates the importance of data management in precision agriculture including data sources, acquisition, analysis and interpretation. Sources include yield monitoring, imagery, soil and crop sensors and machine performance through telemetry. Storage, display, mapping and data use. 3 lectures. {Also offered for undergraduate credit - See ASM 455.}.

ASM 675. Management of Agricultural Systems. 2 Credits.

Capstone learning experience involving team solution to problems in agricultural systems management. Oral and written communications are emphasized. 2 lectures. {Also offered for undergraduate credit - see ASM 475.}.