**Major in Agricultural Studies**

**Bachelor of Science in Agriculture**

**Emphasis in Agricultural Systems Technology**

A complete 8-semester degree plan is available at <https://www.astate.edu/info/academics/degrees/>

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| **University Requirements:** |   |
| See University General Requirements for Baccalaureate degrees (p. 44) |   |
| **First Year Making Connections Course** | **Sem. Hrs.** |
| AGRI 1213, Making Connections in Agriculture | **3** |
| **General Education Requirements:**  | **Sem. Hrs.** |
| See General Education Curriculum for Baccalaureate degrees (p. 89)**Students with this major must take the following:***MATH 1023, College Algebra or MATH course that requires MATH 1023 as a prerequisite**BIOL 1003* ***AND*** *BIOL 1001, Biological Science and Laboratory**CHEM 1013 AND 1011, General Chemistry I and Laboratory OR**CHEM 1043 AND CHEM 1041, Fundamental Concepts of Chemistry and Laboratory**COMS 1203, Oral Communication (Required Departmental Gen. Ed. Option)* | **35** |
| **Agriculture Core Courses:**  | **Sem. Hrs.** |
| (See Beginning of Agriculture Section)  | **24** |
| **Major Requirements:** | **Sem. Hrs.** |
| See emphasis area below. |   |
| **Emphasis Area (Agricultural Systems Technology):** | **Sem. Hrs** |
| *Select one of the following:*AGEC 3013, Agricultural Records ORAGST 3503, Geospatial Data Applications | 3 |
| AGRI 4223, Agriculture and the Environment | 3 |
| AGST 3543, Fundamentals of GIS/GPS | 3 |
| AGST 4003, Modern Irrigation Systems | 3 |
| AGST 4022, Irrigation Technology Tools | 2 |
| AGST 4543, Advanced Geographic Information Systems  | 3 |
| *Select one of the following:* AGST 4501, Agricultural Decision Analysis OR AGST 4511, Intro to Unmanned Aircraft Systems | 1 |
| AGST 4773, Remote Sensing | 3 |
| AGST 4843, Agricultural Systems Technology Capstone | 3 |
| *Select one of the following:*BIO 3023, Principles of Ecology ORGEOG 3723, Introduction to Physical Geography ORGEOG 4113, Water Resources Planning ORGEOG 4633, Climatology | 3 |
| *Select one of the following:*BIO 1503 AND 1501, Biology of Plants and Laboratory ORGEOL 1003 AND 1001, Environmental Geology and Laboratory ORPHSC 1014, Energy and the Environment ORPHSC 1203 AND 1201, Physical Science and Laboratory ORPHYS 1103 AND 1101, Intro to Space Science and Laboratory ORPHYS 2054, General Physics I  | 4 |
| *Select one of the following:*CIT 1503, Microcomputer Applications ORCS 1013, Introduction to Computers Applications  | 3 |
| GEOG 2613, Introduction to Geography | 3 |
| MATH 1033, Plane Trigonometry | 3 |
| *Select two of the following:*PSSC 3313, Plant Disease Management ORPSSC 3323, Weeds and Weed Control ORPSSC 4713, Soil Quality Assessment and Interpretation ORPSSC 4804, Principles of Crop Production ORPSSC 4813, Soil Fertility OR | 6-7 |
| TECH 3803, Electrical Systems | 3 |
| Upper-level electives in AGEC, AGST, AGRI, PSSC. | 8-9 |
| Sub-total | 58 |
| **Total Required Hours:** | **120** |

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# Agricultural Systems Technology (AGST)

**AGST 2003. Intro to Agricultural Systems Technology** Introduction to physical concepts relevant to different agricultural systems: applied mechanics, agricultural equipment technology, agricultural power trains and machinery management, efficiency and precision. Prerequisites: CS 1013 or CIT 1503, COMS 1203, MATH 1023 or higher. Fall.

**AGST 3503. Geospatial Data Applications** Basic understanding and utilization of software applications to manage geospatial and tabular data, including text editors, spreadsheets, databases and geodatabases for data: collection, cleaning, joining, filtering, summarization, visualization and unit conversion. Prerequisite: AGST 2003, PSSC 2813. Fall, Spring.

**AGST 3543. Fundamentals of GIS/GPS** Geospatial data acquisition, mapping, and interpretation for human-environment interactions using geographic information systems and the global positioning system. Prerequisites: COMS 1203, MATH 1023 or higher; Prerequisite or corequisite: AGEC 3013 or AGST 3503 or BIO 3023. Fall, Spring.

**AGST 4003. Modern Irrigation Systems** Methods, equipment, current issues and future directions of irrigation, irrigation design and scheduling, drainage systems, irrigation measurements, performance evaluation, and impact on productive and sustainable agriculture. Two hours lecture and two hours lab weekly. Dual listed with AGST 5003. Prerequisites: AGST 2003; PSSC 2813. Spring.

**AGST 401V~~3~~. Special Problems in Agricultural Systems Technology** For students of senior standing to work on special problems. Approval of instructor and dean necessary. Fall, Spring, Summer.

**AGST 4022. Irrigation Technology Tools** Introduce technical tools and software related to irrigation system hydraulic design and management. Dual listed with AGST 5022. Prerequisites: AGST 3543, AGST 4003. Fall.

**AGST 4501. Agricultural Decision Analysis** Hands-on experience with cloud/desktop software, spatial algorithms and image processing of georeferenced data obtained from diverse sources, such as human scouts, ground and equipment sensors, and unmanned aerial systems. Dual listed with AGST 5501. Prerequisite: AGST 3543 with a grade of B or better. Fall.

**AGST 4511. Intro to Unmanned Aircraft Systems** Software and mobile applications for designing flight missions, collecting data, and analyzing/interpreting imagery for agricultural practices. Intended to prepare students for the Federal Aviation Administration (FAA) remote pilot license exam. Dual listed with AGST 5511. Prerequisites: AGST 3543, AGST 4773. Fall.

**AGST 4543. Advanced Geographic Information Systems** Methods, concepts, software, analysis and modeling of geospatial data using raster and vector data models for human-environment interactions using geographic information systems (GIS). Prerequisite, AGST 3543 with a grade of B or better. Spring.

**AGST 4773. Remote Sensing** Passive and active means of aerial and satellite image acquisition, processing, analysis, and interpretation for research and decision making in agricultural, environmental, and natural resource applications. Prerequisite, AGST 3543 with a grade of B or better. Fall.

**AGST 4843Agricultural Systems Technology Capstone** Integrate environmental phenomena, reveal a spatial problem, choose effective decision tools, and design a solution to an existing agricultural, environmental or natural resources problem using modern geospatial technologies. (AGST majors only) Prerequisites: AGST 3503, AGST 4543, AGST 4773 Spring.

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*The bulletin can be accessed at* [*https://www.astate.edu/a/registrar/students/bulletins/*](https://www.astate.edu/a/registrar/students/bulletins/)

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