

**AST Course Map**  
**Of Student Outcomes**

	Required Courses																	
	A S T E	A S T E	A S T E	A S T E	A S T E	A S T E	A S T E	A S T E	A S T E	A S T E	A S T E	A S T E	C H E M	E C O N	E C O N	E C O N	S O I L	D E S I G N E L E C
<u>AST Student Outcomes</u>	1 0 1 0	2 2 0 0	2 8 3 0	3 0 3 0	3 0 5 0	3 0 8 0	3 0 9 0	4 1 0 0	4 9 0 0	5 2 6 0	2 0 1 0	1 1 1 0	1 5 0 0	3 0 3 0	3 0 5 0	3 0 0 0		
<ul style="list-style-type: none"> <li>Apply knowledge of math, science, technology and applied science to agricultural and natural resource situations.</li> </ul>	X	X		X		X		X		X	X	X	X					X
<ul style="list-style-type: none"> <li>Provide viable solutions to situations within existing economic, environmental, social, political, health &amp; safety, and sustainability constraints.</li> </ul>									X	X			X	X	X	X	X	X
<ul style="list-style-type: none"> <li>Work and communicate effectively as individuals and collaboratively.</li> </ul>			X		X				X							X		X
<ul style="list-style-type: none"> <li>Recognize personal limitations and the need for further education, knowledge or assistance.</li> </ul>	X	X	X		X	X			X		X	X	X	X				X
<ul style="list-style-type: none"> <li>Contribute to their community, and society in general, using their knowledge and professional expertise.</li> </ul>				X			X		X							X		

## Appendix A

### Descriptions of Courses<sup>1</sup> Used in the AST degree (not including University Studies)

**ASTE 1010 Introduction to Agricultural Systems Technology**, 3 credits, Introduction to problem solving related to the areas of agricultural power and machinery, soil and water conservation, structures and animal environments, electrical circuits, and emerging technologies.

**ASTE 1120 Forage and Harvest Equipment**, 3 credits, Fundamentals and principles in operations, adjustments, and maintenance of technologies utilized in agricultural forage and combine harvesting.

**ASTE 1130 Planting and Tillage Equipment**, 3 credits, Fundamentals and principles in operation, maintenance, and repair of planting and tillage equipment. Exploration of different systems and their applications.

**ASTE 1610 Agricultural Machinery Engines**, 6 credits, Fundamental principles and components utilized in the power production for agricultural machinery. Diesel engines, as power plants, will be overhauled using a systems approach.

**ASTE 1620 Agricultural Machinery Power Trains**, 6 credits, Fundamental principles and components utilized in agricultural machinery transmittal of power through drive trains. A systems approach to overhauling these components will be developed.

**ASTE 1640 Agricultural Equipment and Parts Marketing and Communications**, 3 credits, Introduction to principles and operation of computer software systems related to marketing and management within the agricultural machinery business industry. Emphasis on business communication principles for effective transfer of information and problem resolution.

**ASTE 2200 Electricity in Agricultural Systems**, 3 credits, Fundamentals of electricity (AC) as used on farms and ranches. Residential and commercial agricultural applications of the National Electric Code. Electrical supply and service, distribution, proper grounding, and installation of components.

**ASTE 2250 Occupational Experience in Agriculture**, 1-6 credits, Supervised occupational experiences for technical vocational preparation.

**ASTE 2830 Agribusiness Sales and Marketing**, 3 credits, Basic principles of agribusiness sales and marketing. After completing a series of self-assessments relating to sales, learning, and personality preferences, students learn to complete each major step of the sales process.

**ASTE 2930 Individualized Projects in Agricultural Mechanics**, 1-6 credits, Basic skill preparation for employment in agricultural industry.

**ASTE 3030 Metal Welding Processes and Technology in Agriculture**, 3 credits, Selection of ferrous and non-ferrous welding techniques in agricultural applications. Welding, cold- and hot-working metal in agricultural construction and maintenance.

**ASTE 3050 (CI) Technical and Professional Communication Principles in Agriculture**, 3 credits, Technical communication principles and practices used in the agricultural industry. Emphasizes technical writing of reports and correspondence using electronic information retrieval and presentation. Prerequisite: Engl 2010.

**ASTE 3080 Compact Power Units for Agricultural and Turfgrass Applications**, 3 credits, Operation and application of agricultural and turfgrass equipment powered by internal combustion engines having less than 40 horsepower.

**ASTE 3090 Computer Applications in Agriculture**, 3 credits, Overview of computer systems and software currently used in agriculture. Emphasizes development of term project using spreadsheets. Word processing, file management, CAD, and computer ethics. Prerequisite: BIS 1400 or satisfactory completion of University computer information literacy exam.

**ASTE 3100 Leadership Applications in Agricultural Science, Management, and Development**, 2 credits, Study of leadership styles and their applications in development of agricultural programs for youth and adults. Emphasized leadership and communication principles for effective community resource management in rural environments. Experiences provided in leadership styles, program planning and meeting organization.

**ASTE 3200 Irrigation Principles and Practices**, 3 credits, Introduction to planning principles for irrigation systems and farm water resource development. Layout of system components and coverage of practices common to the Intermountain West.

**ASTE 3600 (QI) Management of Agricultural Machinery Systems**, 3 credits, Management principles for evaluation and selection of agricultural complements for performance, optimization, economics, environmental impact, and long-term sustainable agricultural practices. Prerequisite: Math 1050 or Stat 1040.

**ASTE 3720 Agricultural DC Electrical Systems and Diagnosis**, 3 credits, Fundamental principles and components overhaul of DC electrical systems as applied in agricultural machinery. Exploration of techniques for diagnosing malfunctions and related failures with a systems approach.

**ASTE 3730 Agricultural Machinery Auxiliary Systems and Diagnosis**, 3 credits, Application of theory, testing, diagnosis, and repairs of auxiliary systems, including air conditioning, fuel injection, analog, electronic monitoring, and GPS as utilized in agricultural equipment. Prerequisite: ASTE 3720 or approval of instructor.

**ASTE 4100 Agricultural Structures and Environment**, 3 credits, Overview of agricultural structures and environmental considerations related to livestock, livestock waste management, and commodity storage. Planning, layout, construction materials, concrete masonry, ventilation, insulation, and energy.

**ASTE 4900 Senior Project Research and Creative Opportunity**, 1-6 credits, Returning student teachers work to strengthen their weaknesses in areas such as scaled drawing, cost estimating, machine shop practices, construction, and small engines.

**ASTE 5260 (d6260) Environmental Impacts of Agricultural Systems**, 3 credits, Investigation of relationship between agricultural practices and environmental quality, including control of agricultural nonpoint-source pollution.

**ACCT 2010 Survey of Accounting I**, 3 credits, Survey of uses of accounting information by investors and creditors for decision making. Emphasis on basic accounting principles used to prepare, analyze, and interpret financial statements. Prerequisites: Completion of 20 credits of college work and 2.2 GPA.

**ACCT 2020 Survey of Accounting II**, 3 credits, Survey of uses of accounting information by managers for decision making, including planning, budgeting, and controlling operations. Emphasizes accumulation, analysis, and control of product and service costs. Prerequisite: Acct 2010.

**CHEM 1010 (BPS) Introduction to Chemistry**, 3 credits, For nonscience majors. Includes basic chemical concepts and a survey of the various branches of chemistry. Heavy emphasis on everyday applications to problems involving environmental pollution, radioactivity energy sources, and human health. Not prerequisites.

**CHEM 1110 General Chemistry I**, 4 credits, For nonscience majors. Progression made from the basic tenets of general chemistry to introduction to organic chemistry, with ascent in terms of practical importance and sophistication. Prerequisite: Math ACT score of at least 23, or Math 1050 or higher.

**ECON 1500(BAI) Introduction to Economic Institutions, History, and Principles**, 3 credits, Designed to build an understanding of economic institutions, history, and principles. Relationship between private and public sectors of U.S. economy. Analysis of major economic institutions, such as property rights, markets, business organizations, labor unions, money and banking, trade, and taxation. No prerequisites.

**ECON 3030 Introduction to Agribusiness Marketing**, 3 credits, Principles and practices used by agribusiness firms to market products. Topics covered include the use of futures markets, international trade, marketing orders, and commodity marketing problems. Prerequisite: Econ 1500.

**ECON 3050 Introduction to Agribusiness Management**, 3 credits, Application of principles and practices used by managers of agribusiness firms. Prerequisites: Econ 1500, Acct 2010.

**ECON 4010 Managerial Economics**, 3 credits, Microeconomic principles applied to economic decision-making and policy formulation, with emphasis at the level of business firm and the individual consumer. Designed for undergraduate business and accounting majors. Credit will not be given for both Econ 4010 and 5010. Prerequisites: Econ 2010; Math 1100; Stat 2300.

**ECON 4030 (CI) Agribusiness Finance**, 3 credits, Financial considerations in organizing and operating farms, ranches, and agribusiness firms. Prerequisites: Econ 2010; Acct 2010.

**ECON 5030 Agricultural Marketing and Price Analysis**, 3 credits, Agribusiness market strategies and price analysis. Designed for upper-division students. Prerequisite: Econ 4010 or 5010.

**ECON 5050 Farm and Ranch Planning and Analysis**, 3 credits, Economic principles and tools in operation of farm and ranch enterprises. Designed for upper-division students. Prerequisites: Econ 4010 or 5010; and Econ 4030.

**ECON 5350 (CI) Agribusiness, Cooperatives, and Management**, 3 credits, Applications of economic and management principles to farm marketing and supply firms. Includes independent work on a set of case studies designed to enhance understanding of current issues in agribusiness and provide practice in solving everyday management problems. Prerequisite: Econ 4010 or 5010.

**MATH 1050 (QL) College Algebra**, 4 credits, Real and complex number systems, graphs, inverse functions, polynomial and rational functions, exponential and logarithmic functions, systems of equations, elementary matrix algebra, induction, binomial theorem, permutations and combinations. Graphing calculator requires. Prerequisite: Math 1010, or Math ACT score of at least 23, or satisfactory score on placement exam.

**MATH 1060 Trigonometry**, 2 credits, Trigonometric functions, equations, identities, and applications. Graphing calculator required. Prerequisite: Math 1010, or Math ACT score of at least 23, or satisfactory score on placement exam. May be taken concurrently with Math 1050.

**Math 1100 (QL) Calculus Techniques**, 3 credits. Techniques of elementary calculus, differentiation, integration, elementary optimization, and introduction to partial derivatives. Application in business, social science, and natural resources. Graphing calculator required. Prerequisite: Math 1050, or a math ACT score of at least 25.

**MHR 2990 Legal and Ethical Environment of Business**, 3 credits, Surveys the legal and ethical environment of business. Introduction to elementary legal research and writing and critical thinking techniques. Lecture and laboratory.

**SOIL 3000 Fundamentals of Soil Science**, 4 credits, Fundamentals of soil science, emphasizing physical, chemical, mineralogical, and biological properties of soils, and how these properties relate to plant growth and environmental quality. Prerequisites: Chem 1110, Math 1050, or equivalents.

<sup>1</sup> Courses highlighted in blue are required.