

High School to College and Career Pathway: Secondary Career and Technical Education

Area of Study: Agricultural Education

Pathway: Agricultural Systems Technology

Get the Facts

Utah agriculturists produce crops and livestock worth over \$1.5 billion annually. Students enrolled in high school agricultural courses are looking to join a \$1.5 billion industry in Utah and a \$300 billion industry nationwide.

Workforce Trends

According to the U.S. Department of Labor, the growing interest in worldwide standardization of agricultural equipment should result in increased employment of agricultural engineers. Job opportunities should also result from the increasing demand for agricultural products, the continued efforts for more efficient agricultural production, and the increasing emphasis on the conservation of resources.



CAREER AND TECHNICAL EDUCATION Recommended Pathway Courses

(Students may select individual courses for exploration, or a complete Pathway for an in-depth focus.)

CLASS AVAILABILITY MAY VARY AT YOUR HIGH SCHOOL

Course #	Foundation Courses: (required)	Credit
01.0211	Agricultural Systems Technology 1	1.00
01.0221	Agricultural Systems Technology 2	1.00
Elective Courses:		
01.0111	Agricultural Business Management	1.00
01.0802	Agricultural Communication OR	1.00
52.0511	Business Communication 1 OR	
52.0521	Business Communication 2	
01.0803	Agricultural Leadership OR	1.00
08.0211	Leadership Principles	
01.0241	Agricultural Machinery Technology	1.00
01.0231	Agricultural Mechanics, Advanced	1.00
01.0311	Agricultural Science 1	1.00
02.0112	Biology-Agricultural Science	1.00
01.0121	Farm and Ranch Management	1.00
21.0707	Industrial/Agricultural Technology (IAT)	1.00
48.0508	Welding Technician – Entry Level	1.00
48.0510	Welding Technician – Intermediate Level	1.00
48.0512	Welding Technician – Advanced Level	1.00
01.0100	Summer Agriculture Program	.25
Supervised Agriculture Experience Program (capstone experience)		
32.0199	Workplace Skills	.50

2.00 credits

1.00 credit

3.00 credits for completion

Agricultural Systems Technology is:

- > High skill
- > High demand

Sample Career Occupations

- > Agricultural Education Teacher
- > Agricultural Engineer
- > Agricultural Engineer Technician
- > Diesel Mechanic
- > Equipment Parts Manager
- > Environmental Tech.
- > Heavy Equipment Operator
- > Machinist
- > Recycling Technician
- > Welder

Middle School		State Requirements		High School Suggested Education Plan				College and Career
7th Grade	8th Grade	Middle School	High School	9th Grade Suggested	10th Grade Suggested	11th Grade Suggested	12th Grade Suggested	Beyond High School
Language Arts 7 1.00	Language Arts 8 1.00	2.00	Language Arts 4.00	Language Arts 9 1.00	Language Arts 10 1.00	Language Arts 11 1.00	Language Arts 12 1.00	<p>There are a number of options for education and training beyond high school, depending on your career goals.</p> <ul style="list-style-type: none"> > Certificate > Associate degree > Bachelor's degree > Professional degree > On-the-job training > Apprenticeship > Military training <p>For more information on salary projections, labor market demand, and training options, visit UtahFutures.org.</p>
Math * 1.00	Math * 1.00	2.00	Math 3.00	Math * 1.00	Math * 1.00	Math * 1.00		
Science .50	Science 1.00	1.50	Science 3.00	Earth Systems 1.00	Biology–Agricultural Science or Biological Science 1.00	Agricultural Science I 1.00		
Utah Studies .50	U.S. History I 1.00	1.50	Social Studies 3.00	Geography for Life .50	World Civilizations .50	U.S. History II 1.00	U.S. Government and Citizenship .50	
			General Financial Literacy .50			General Financial Literacy .50		
P.E. 1.00	Health .50	1.50	P.E./Health 2.00	Participation Skills and Techniques .50	Fitness for Life .50 / Health Education .50 Lifetime Activities or Sport .50			
The Arts .50	The Arts .50	1.00	Fine Arts 1.50	Fine Arts Courses 1.50				
Keyboarding .50			Digital Literacy .50	Comp. Tech. or Exploring Computer Science .50				
College & Career Awareness 1.00		1.00	CTE 1.00	Refer to Career and Technical Education box above.				

> * Talk to your school counselor about math requirements in the core curriculum. Core curriculum and elective requirements may vary district to district.
> Many CTE courses may qualify for concurrent enrollment credit, which in some cases may earn up to 1.0 credit toward Pathway completion. Talk to your school counselor about availability.

> Concurrent enrollment course offerings vary by school and district.
> Many Utah postsecondary programs accept high school courses toward a two- or four-year degree through concurrent enrollment. Check regional postsecondary Pathways for details.

High School to College and Career Pathway: Secondary Career and Technical Education

Area of Study: Agricultural Education

Pathway: Animal Systems

Get the Facts

Agriculture is a vital industry to Utah's economy. There are 16,700 farms in the state, totaling approximately 11 million acres, where Utah agriculturists produce crops and livestock worth over \$1.5 billion annually.

In Utah, a veterinarian must be licensed.

Workforce Trends

Twenty-one million people (or 18.5 percent of the American workforce) are employed in the agricultural industry. Farmers and ranchers provide food and habitat for 75 percent of the nation's wildlife. One-fourth of the world's beef and one-fifth of the world's grain, milk, and eggs are produced in the United States.



CAREER AND TECHNICAL EDUCATION Recommended Pathway Courses

(Students may select individual courses for exploration, or a complete Pathway for an in-depth focus.)

CLASS AVAILABILITY MAY VARY AT YOUR HIGH SCHOOL

Course #	Foundation Courses: (required)	Credit
<i>Choose two of the following courses:</i>		
02.0211	Animal Science 1	1.00
02.0241	Animal Science 2	1.00
02.0221	Equine Science	1.00
02.0271	Small and Companion Animal Science	1.00
02.0231	Veterinary Assistant 1	1.00
<i>Elective Courses:</i>		
01.0111	Agricultural Business Management	1.00
01.0802	Agricultural Communication OR	1.00
52.0511	Business Communication 1 OR	
52.0521	Business Communication 2	
01.0803	Agricultural Leadership OR	1.00
08.0211	Leadership Principles	
01.0311	Agricultural Science 1	1.00
01.0361	Aquaculture, Advanced	1.00
01.0351	Aquaculture, Introductory	1.00
02.0112	Biology-Agricultural Science	1.00
02.0222	Equine Science A	.50
02.0223	Equine Science B	.50
02.0235	Veterinary Assistant 2	1.00
01.0100	Summer Agriculture Program	.25
	Supervised Agriculture Experience Program (capstone experience)	
32.0199	Workplace Skills	.50

2.00 credits

1.00 credit

3.00 credits for completion

Animal Systems is:
> High skill
> High wage

Sample Career Occupations

- > Agricultural Education Teacher
- > Animal Geneticist
- > Animal Nutritionist
- > Animal Scientist
- > Animal Technician
- > Aquaculturalist
- > Feed Sales Representative
- > Herdsman
- > Livestock Inspector
- > Veterinarian
- > Veterinary Technician

Foundation courses taken beyond the required credits can be used as elective credit.

Middle School		State Requirements		High School Suggested Education Plan				College and Career
7th Grade	8th Grade	Middle School	High School	9th Grade Suggested	10th Grade Suggested	11th Grade Suggested	12th Grade Suggested	Beyond High School
Language Arts 7 1.00	Language Arts 8 1.00	2.00	Language Arts 4.00	Language Arts 9 1.00	Language Arts 10 1.00	Language Arts 11 1.00	Language Arts 12 1.00	<p>There are a number of options for education and training beyond high school, depending on your career goals.</p> <ul style="list-style-type: none"> > Certificate > Associate degree > Bachelor's degree > Professional degree > On-the-job training > Apprenticeship > Military training <p>For more information on salary projections, labor market demand, and training options, visit UtahFutures.org.</p>
Math * 1.00	Math * 1.00	2.00	Math 3.00	Math * 1.00	Math * 1.00	Math * 1.00		
Science .50	Science 1.00	1.50	Science 3.00	Earth Systems 1.00	Biology-Agricultural Science or Biological Science 1.00	Agricultural Science I 1.00		
Utah Studies .50	U.S. History I 1.00	1.50	Social Studies 3.00	Geography for Life .50	World Civilizations .50	U.S. History II 1.00	U.S. Government and Citizenship .50	
			General Financial Literacy .50			General Financial Literacy .50		
P.E. 1.00	Health .50	1.50	P.E./Health 2.00	Participation Skills and Techniques .50	Fitness for Life .50 / Health Education .50 Lifetime Activities or Sport .50			
The Arts .50	The Arts .50	1.00	Fine Arts 1.50	Fine Arts Courses 1.50				
Keyboarding .50			Digital Literacy .50	Comp. Tech. or Exploring Computer Science .50				
College & Career Awareness 1.00		1.00	CTE 1.00	Refer to Career and Technical Education box above.				

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> Many CTE courses may qualify for concurrent enrollment credit, which in some cases may earn up to 1.0 credit toward Pathway completion. Talk to your school counselor about availability.

> Concurrent enrollment course offerings vary by school and district.
> Many Utah postsecondary programs accept high school courses toward a two- or four-year degree through concurrent enrollment. Check regional postsecondary Pathways for details.

High School to College and Career Pathway: Secondary Career and Technical Education

Area of Study: Agricultural Education

Pathway: Food Production and Processing Systems

Get the Facts

Farmers and ranchers provide food and habitat for 75 percent of the nation's wildlife. One-fourth of the world's beef and one-fifth of the world's grain, milk, and eggs are produced in the United States.

According to the U.S. Department of Labor, 82 percent of the U.S. agriculture products sold are produced on family owned farms.

Workforce Trends

According to the U.S. Department of Labor, 1 in 7 Americans work in agriculture-related jobs.

According to the Utah Farm Bureau Federation, more than 100,000 people are employed by agriculture and agribusiness in the state of Utah.



CAREER AND TECHNICAL EDUCATION Recommended Pathway Courses

(Students may select individual courses for exploration, or a complete Pathway for an in-depth focus.)

CLASS AVAILABILITY MAY VARY AT YOUR HIGH SCHOOL

Course #	Foundation Courses: (required)	Credit
01.0311	Agricultural Science 1	1.00
01.0321	Agricultural Science 2	1.00
Or choose the following courses:		
02.0211	Animal Science 1	1.00
02.0411	Plant and Soil Science 1	1.00
Elective Courses:		
01.0111	Agricultural Business Management	1.00
01.0802	Agricultural Communication OR	1.00
52.0511	Business Communication 1 OR	
52.0521	Business Communication 2	
01.0803	Agricultural Leadership OR	1.00
08.0211	Leadership Principles	
01.0331	Agricultural Science 3	1.00
02.0241	Animal Science 2	1.00
01.0361	Aquaculture, Advanced	1.00
01.0351	Aquaculture, Introductory	1.00
02.0112	Biology-Agricultural Science	1.00
02.0221	Equine Science	1.00
02.0222	Equine Science A	.50
02.0223	Equine Science B	.50
01.0121	Farm and Ranch Management	1.00
02.0271	Small and Companion Animal Science	1.00
02.0231	Veterinary Assistant 1	1.00
02.0235	Veterinary Assistant 2	1.00
01.0100	Summer Agriculture Program	.25
	Supervised Agriculture Experience Program (capstone experience)	
32.0199	Workplace Skills	.50

2.00 credits

1.00 credit

3.00 credits for completion

Food Production/ Processing Systems is:

- > High skill
- > High wage
- > High demand

Sample Career Occupations

- > Ag. Commodity Broker
- > Ag. Economist
- > Ag. Ed. Teacher
- > Ag. Journalist
- > Ag. Lender
- > Ag. Loan Officer
- > Ag. Marketing Specialist
- > Ag. Products Buyer
- > Farm/Ranch Manager
- > Feed/Farm Supply Mgr.
- > Livestock Buyer/Seller
- > Meat Inspector
- > Pesticide Applicator
- > Produce Buyer

Foundation courses taken beyond the required credits can be used as elective credit.

Middle School		State Requirements		High School Suggested Education Plan				College and Career
7th Grade	8th Grade	Middle School	High School	9th Grade Suggested	10th Grade Suggested	11th Grade Suggested	12th Grade Suggested	Beyond High School
Language Arts 7 1.00	Language Arts 8 1.00	2.00	Language Arts 4.00	Language Arts 9 1.00	Language Arts 10 1.00	Language Arts 11 1.00	Language Arts 12 1.00	<p>There are a number of options for education and training beyond high school, depending on your career goals.</p> <ul style="list-style-type: none"> > Certificate > Associate degree > Bachelor's degree > Professional degree > On-the-job training > Apprenticeship > Military training <p>For more information on salary projections, labor market demand, and training options, visit UtahFutures.org.</p>
Math * 1.00	Math * 1.00	2.00	Math 3.00	Math * 1.00	Math * 1.00	Math * 1.00		
Science .50	Science 1.00	1.50	Science 3.00	Earth Systems 1.00	Biology-Agricultural Science or Biological Science 1.00	Animal Science or Plant and Soil Science 1.00		
Utah Studies .50	U.S. History I 1.00	1.50	Social Studies 3.00	Geography for Life .50	World Civilizations .50	U.S. History II 1.00	U.S. Government and Citizenship .50	
P.E. 1.00	Health .50	1.50	P.E./Health 2.00	Participation Skills and Techniques .50	Fitness for Life .50 / Health Education .50 Lifetime Activities or Sport .50			
The Arts .50	The Arts .50	1.00	Fine Arts 1.50	Fine Arts Courses 1.50				
Keyboarding .50			Digital Literacy .50	Comp. Tech. or Exploring Computer Science .50				
College & Career Awareness 1.00		1.00	CTE 1.00	Refer to Career and Technical Education box above.				

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High School to College and Career Pathway: Secondary Career and Technical Education

Area of Study: Agricultural Education

Pathway: Natural Resource Systems

Get the Facts

There are 550 to 700 bison that roam Antelope Island State Park, the largest island in the Great Salt Lake. The island herd is the second oldest privately held herd in the United States. Today, the bison on the island are among the most sought-after bison in the country.

Workforce Trends

Utah has a wealth of natural resources, which includes five national parks, seven national monuments, seven national forests, two national recreation areas, 45 state parks, and millions of acres of Bureau of Land Management (BLM)—administered deserts and range land.

In 2013, Utah's five national parks (known as the Mighty 5®) drew more than 8.9 million visitors from around the world.



CAREER AND TECHNICAL EDUCATION Recommended Pathway Courses		
(Students may select individual courses for exploration, or a complete Pathway for an in-depth focus.)		
CLASS AVAILABILITY MAY VARY AT YOUR HIGH SCHOOL		
Course #	Foundation Courses: (required)	Credit
Choose two of the following courses:		
01.0351	Aquaculture, Introductory	1.00
03.0111	Natural Resource Science 1	1.00
03.0121	Natural Resource Science 2	1.00
Elective Courses:		
01.0111	Agricultural Business Management	1.00
01.0802	Agricultural Communication OR	1.00
52.0511	Business Communication 1 OR	
52.0521	Business Communication 2	
01.0803	Agricultural Leadership OR	1.00
08.0211	Leadership Principles	
01.0311	Agricultural Science 1	1.00
01.0361	Aquaculture, Advanced	1.00
02.0112	Biology-Agricultural Science	1.00
01.0121	Farm and Ranch Management	1.00
03.0113	Natural Resource Science Semester	.50
01.0100	Summer Agriculture Program	.25
	Supervised Agriculture Experience Program (capstone experience)	
32.0199	Workplace Skills	.50

2.00 credits

1.00 credit

Foundation courses taken beyond the required credits can be used as elective credit.

3.00 credits for completion

Natural Resource Systems is:

- > High skill
- > High wage

Sample Career Occupations

- > Agricultural Education Teacher
- > Fish & Game Officer
- > Fish Hatchery Manager
- > Forest Worker
- > Mining Engineer
- > Outfitter/Guide
- > Park Manager
- > Water Technician
- > Wildlife Firefighter
- > Wildlife Officer

With the multitude of natural resources in Utah there are a vast amount of career opportunities within eight federal and state divisions.

Middle School		State Requirements		High School Suggested Education Plan				College and Career
7th Grade	8th Grade	Middle School	High School	9th Grade Suggested	10th Grade Suggested	11th Grade Suggested	12th Grade Suggested	Beyond High School
Language Arts 7 1.00	Language Arts 8 1.00	2.00	Language Arts 4.00	Language Arts 9 1.00	Language Arts 10 1.00	Language Arts 11 1.00	Language Arts 12 1.00	<p>There are a number of options for education and training beyond high school, depending on your career goals.</p> <ul style="list-style-type: none"> > Certificate > Associate degree > Bachelor's degree > Professional degree > On-the-job training > Apprenticeship > Military training <p>For more information on salary projections, labor market demand, and training options, visit UtahFutures.org.</p>
Math * 1.00	Math * 1.00	2.00	Math 3.00	Math * 1.00	Math * 1.00	Math * 1.00		
Science .50	Science 1.00	1.50	Science 3.00	Earth Systems 1.00	Biology-Agricultural Science or Biological Science 1.00	Plant and Soil Science or Aquaculture 1.00		
Utah Studies .50	U.S. History I 1.00	1.50	Social Studies 3.00	Geography for Life .50	World Civilizations .50	U.S. History II 1.00	U.S. Government and Citizenship .50	
			General Financial Literacy .50			General Financial Literacy .50		
P.E. 1.00	Health .50	1.50	P.E./Health 2.00	Participation Skills and Techniques .50	Fitness for Life .50 / Health Education .50 Lifetime Activities or Sport .50			
The Arts .50	The Arts .50	1.00	Fine Arts 1.50	Fine Arts Courses 1.50				
Keyboarding .50			Digital Literacy .50	Comp. Tech. or Exploring Computer Science .50				
College & Career Awareness 1.00		1.00	CTE 1.00	Refer to Career and Technical Education box above.				

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High School to College and Career Pathway: Secondary Career and Technical Education

Area of Study: Agricultural Education

Pathway: Plant Systems

Get the Facts

According to the American Farm Bureau Federation, 82 million American households spend \$35.1 billion annually at lawn and garden retail outlets.

U.S. consumers spend \$44.7 billion annually on professional landscape, lawn and tree care services.

In Utah, a landscape architect must be licensed.

Workforce Trends

According to the U.S. Department of Labor, positions in landscape and horticultural services are projected to increase at a fast pace.



CAREER AND TECHNICAL EDUCATION Recommended Pathway Courses

(Students may select individual courses for exploration, or a complete Pathway for an in-depth focus.)

CLASS AVAILABILITY MAY VARY AT YOUR HIGH SCHOOL

Course #	Foundation Courses: (required)	Credit
Choose two credits from the following courses:		
01.0632	Floriculture	.50
01.0631	Floriculture and Greenhouse Management	1.00
01.0633	Greenhouse Management	.50
01.0641	Landscape Management	.50
01.0642	Nursery Operation	.50
02.0411	Plant and Soil Science 1	1.00
02.0421	Plant Science 2	1.00
Elective Courses:		
01.0111	Agricultural Business Management	1.00
01.0802	Agricultural Communication OR	1.00
52.0511	Business Communication 1 OR	
52.0521	Business Communication 2	
01.0803	Agricultural Leadership OR	1.00
08.0211	Leadership Principles	
01.0311	Agricultural Science 1	1.00
02.0112	Biology-Agricultural Science	1.00
01.0121	Farm and Ranch Management	1.00
01.0651	Ornamental Horticulture, Applied	1.00
01.0100	Summer Agriculture Program	.25
	Supervised Agriculture Experience Program (capstone experience)	
32.0199	Workplace Skills	.50

2.00 credits

1.00 credit

3.00 credits for completion

Plant Systems is:
> High demand

Sample Career Occupations

- > Agricultural Education Teacher
- > Arborist
- > Botanist
- > Forest Geneticist
- > Golf Course Superintendent
- > Greenhouse Operator
- > Landscape Architect
- > Plant Breeder
- > Soil & Water Specialist
- > Tree Surgeon

Foundation courses taken beyond the required credits can be used as elective credit.

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7th Grade	8th Grade	Middle School	High School	9th Grade Suggested	10th Grade Suggested	11th Grade Suggested	12th Grade Suggested	Beyond High School
Language Arts 7 1.00	Language Arts 8 1.00	2.00	Language Arts 4.00	Language Arts 9 1.00	Language Arts 10 1.00	Language Arts 11 1.00	Language Arts 12 1.00	<p>There are a number of options for education and training beyond high school, depending on your career goals.</p> <ul style="list-style-type: none"> > Certificate > Associate degree > Bachelor's degree > Professional degree > On-the-job training > Apprenticeship > Military training <p>For more information on salary projections, labor market demand, and training options, visit UtahFutures.org.</p>
Math * 1.00	Math * 1.00	2.00	Math 3.00	Math * 1.00	Math * 1.00	Math * 1.00		
Science .50	Science 1.00	1.50	Science 3.00	Earth Systems 1.00	Biology-Agricultural Science or Biological Science 1.00	Plant and Soil Science 1.00		
Utah Studies .50	U.S. History I 1.00	1.50	Social Studies 3.00	Geography for Life .50	World Civilizations .50	U.S. History II 1.00	U.S. Government and Citizenship .50	
			General Financial Literacy .50			General Financial Literacy .50		
P.E. 1.00	Health .50	1.50	P.E./Health 2.00	Participation Skills and Techniques .50	Fitness for Life .50 / Health Education .50 Lifetime Activities or Sport .50			
The Arts .50	The Arts .50	1.00	Fine Arts 1.50	Fine Arts Courses 1.50				
Keyboarding .50			Digital Literacy .50	Comp. Tech. or Exploring Computer Science .50				
College & Career Awareness 1.00		1.00	CTE 1.00	Refer to Career and Technical Education box above.				

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