



Great Oaks College Agriculture Essential Skills Profile

This profile provides an outline of the skills required for successful completion of this career program. Additional information is located on the Great Oaks website at <http://hs.greatoaks.com/essential-skills-high-school-programs/> and selecting the corresponding career program.

Recommended Work Keys Scores for College Agriculture

Applied Mathematics-5	Locating Information-4
Reading for Information-5	

*Practice tests and more information at www.act.org/workkeys

Related Information

Entrance Requirements	Must meet admission requirements for Southern State Community College in ACT, SAT or Accuplacer.
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Essential Skills Needed to Successfully Complete the Program

Rating Key:	Low = Slightly Essential	Medium = Essential	High = Very Essential
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Key Vocational Factors		Rating
Visual Acuity	The ability to detect differences/details visually	High
Depth Perception	The ability to detect the physical distance/depth of objects in space and time	High
Oral Communication	The ability to express/explain ideas.	Medium
Oral Expression	The ability to verbally explain and express self in an intelligible manner so others will understand	Medium
Written Communication	The ability to communicate in a written format and record information accurately	Medium
Physical Mobility/Strength	Extended standing, bending, stooping, use of machines, and working inside and outside	High
Eye-hand Coordination	The ability to use tools	High
Auditory Acuity	The ability to detect differences in pitch and sound	Medium
Safety Understanding	Able to comprehend hazards of working with tools, materials, equipment, and environmental conditions; able to wear personal protective equipment suitable for task	High

Worker Trait Skills	Rating
Ability to get along with others	High
Ability to work independently, without close supervision	High

Ability to work toward work including tasks of minimal interest	High
Ability to follow and retain:	
Ability to follow and retain:	High
Multi step oral instructions	High
Written instructions/technical manuals-multi step	Medium
Simple to complex diagram instructions	Medium
Ability to use tools of trade (sprayers, seeder attachment, seed drills, fertilizer spreaders or distributors, complex controlling devices, etc.)	High
Ability to use numerical data (count, measure, compute, etc.) in applied setting	Medium
Ability to discriminate between objects of similar:	
Size	Medium
Shape	Medium
Color	Medium
Spatial relationship	Medium
Ability to organize work process/follow defined procedures	High
Coordination (eye-hand)	High
Able to sequence events or follow a sequence as necessary	High
Active Listening: Give full attention to what other people are saying, taking time to understand the points being made, asking appropriate questions and not interrupting	High
Critical Thinking: Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.	High
Reading Comprehension: Understanding written sentences and paragraphs in work related documents.	High

Reading Skills *See Recommended Work Keys Scores	
Math Skills *See Recommended Work Keys Scores	
Counting-Recording-Comparing-Calculating	Whole numbers and decimals
Calculating Fractions, decimals, ratios, order of operations	Pre-Algebra and Geometry
Ratio, Algebra, Formulas, Square Roots	Geometry

Additional Abilities Required

Deductive Reasoning	The ability to apply general rules to specific problems to produce answers that make sense.
Inductive Reasoning	The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
Oral Comprehension	The ability to listen to and understand information and ideas presented through spoken words and sentences.

Knowledge Required in College Agriculture Field

English Language	Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
Computers and Electronics	Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
Food Production	Knowledge of techniques and equipment for planting, growing, and harvesting food products (both plant and animal) for consumption, including storage/handling techniques.

Technology

Word processing software	Map creation software
Office suite software	Data base user interface and query software
Analytical or scientific software	

College Agriculture Activities

Collect information about soil or field attributes, yield data, or field boundaries, using field data recorders and basic geographic information systems (GIS).	Use geospatial technology to develop soil sampling grids or identify sampling sites for testing characteristics such as nitrogen, phosphorus, or potassium content, pH, or micronutrients.
Demonstrate the applications of geospatial technology, such as Global Positioning System (GPS), geographic information systems (GIS), automatic tractor guidance systems, variable rate chemical input applicators, surveying equipment, or computer mapping software.	Create, layer, and analyze maps showing precision agricultural data, such as crop yields, soil characteristics, input applications, terrain, drainage patterns, or field management history.
Document and maintain records of precision agriculture information.	Identify spatial coordinates, using remote sensing and Global Positioning System (GPS) data.
Apply precision agriculture information to specifically reduce the negative environmental impacts of farming practices.	Analyze data from harvester monitors to develop yield maps.
Install, calibrate, or maintain sensors, mechanical controls, GPS-based vehicle guidance systems, or computer settings.	Analyze geospatial data to determine agricultural implications of factors such as soil quality, terrain, field productivity, fertilizers, or weather conditions.
Contact equipment manufacturers for technical assistance, as needed.	Program farm equipment, such as variable-rate planting equipment or pesticide sprayers, based on input from crop scouting and analysis of field condition variability.

Draw or read maps, such as soil, contour, or plat maps.	Prepare reports in graphical or tabular form, summarizing field productivity or profitability.
Compare crop yield maps with maps of soil test data, chemical application patterns, or other information to develop site-specific crop management plans.	Recommend best crop varieties or seeding rates for specific field areas, based on analysis of geospatial data.
Divide agricultural fields into georeferenced zones, based on soil characteristics and production potentials.	Analyze remote sensing imagery to identify relationships between soil quality, crop canopy densities, light reflectance, and weather history.
Provide advice on the development or application of better boom-spray technology to limit the over application of chemicals and to reduce the migration of chemicals beyond the fields being treated.	Identify areas in need of pesticide treatment by analyzing geospatial data to determine insect movement and damage patterns.
Advise farmers on upgrading Global Positioning System (GPS) equipment to take advantage of newly installed advanced satellite technology.	Participate in efforts to advance precision agriculture technology, such as developing advanced weed identification or automated spot spraying systems.

Possible College Credits

College Credit Plus in English, Math, Social Studies, or Science	Must be preapproved. Must pass a college course at an Ohio college or College Credit Plus class at Great Oaks.
Career Technical Credit Transfer	The Ohio Transfer to Degree Guarantee helps career and technical students transfer credits earned in high school to community college or four-year degree programs. The credit can be used at any Ohio public college or university: <ul style="list-style-type: none"> • If you successfully completed your Career-Technical program and passed certain required assessments. • If you attend a similar program at a public Ohio college or university.

*Additional college or post-secondary education may be required in this field

Possible Career Pathways

Field research technician	Pesticide/herbicide applicator
Agronomist	Feed/seed salesperson
Farm manager	Agricultural consultant
Precision agriculture technician	