

Colorado AFNR Course Scope and Sequence

Course Name	Urban Farm Management		Course Details	Level 4 course in the Plant Science pathway. This would be the next level course in the Agronomy strand		
			Course = 0.50 Carnegie Unit Credit			
Course Description	This course will focus on purpose, site identification, land access, soil quality, water resources, infrastructure for both indoor and outdoor growing operations, production strategies, market development, and financing as it applies to urban farming. Participation in FFA student organization activities and Supervised Agriculture Experience (SAE) projects is an integral course component for leadership development, career exploration, and reinforcement of academic concepts.					
Note:	This is a suggested scope and sequence for the course content. The content will work with any textbook or instructional resource. If locally adapted, make sure all essential knowledge and skills are covered.					
SCED Identification #	18002	Schedule calculation based on 60% of a semester instructional time. Scope and sequence allows for additional time for guest speakers, student presentations, field trips, remediation, or other content topics.				
All courses taught in an approved CTE program must include Essential Skills embedded into the course content. The Essential Skills Framework for this course can be found at https://www.cde.state.co.us/standardsandinstruction/essentialskills						
Unit Number, Title and Brief Description	Suggested % of Instructional Time	CTE or Academic Standard Alignment	Competency / Performance Indicator	Outcome / Measurement	CTSO Integration	
Unit 1: Purpose of the Urban Farm	4%	PS.04. Apply principles of design in plant systems to enhance an environment (e.g. floral, forest landscape, and farm).	PS.04.01. Evaluating, identifying and preparing plants to enhance an environment. PS.04.02. Create designs using plants	PS.04.01.01.a. Identify and categorize plants by their purpose (e.g., floral plants, landscape plants, house plants, etc.). PS.04.01.02.a. Summarize the applications of design in agriculture and ornamental plant systems. PS.04.02.03.a. Explain the concept of landscape ecology and summarize factors that shape the ecology of a landscape		

				(e.g., composition, structure, function, etc.).	
Unit 2: Site Identification	6%	PS.01. Develop and implement a crop management plan for a given production goal that accounts for environmental factors.	PS.01.01. Determine the influence of environmental factors on plant growth	PS.01.01.01.a. Identify and summarize the three measurements of light – color, intensity and duration – that affect plant growth. PS.01.01.02.a. Identify and summarize the effects of air and temperature on plant metabolism and growth. PS.01.01.03.a. Identify and summarize the effects of water quality on plant growth, (e.g., pH, dissolved solids, etc.).	Land Evaluation CDE
Unit 3: Land Access - Determining site suitability - Infrastructure needs	4%	PS.01. Develop and implement a crop management plan for a given production goal that accounts for environmental factors.			
Unit 4: Soil Quality	10%	PS.01. Develop and implement a crop management plan for a given production goal that accounts for environmental factors.	PS.01.02. Prepare and manage growing media for use in plant systems.	PS.01.02.01.a. Identify the major components of growing media and describe how growing media support plant growth. PS.01.02.02.a. Identify the categories of soil water.	
Unit 5: Water Resources	10%	PS.01. Develop and implement a crop management plan for a given production goal	PS.01.01. Determine the influence of environmental factors on plant growth.	PS.01.01.03.a. Identify and summarize the effects of water quality on plant	

		that accounts for environmental factors.	<u>SCIENCE: SC.HS.2.6</u>	growth, (e.g., pH, dissolved solids, etc.).	
Unit 6: Infrastructure	10%	PS.03 Propagate, culture, and harvest plants and plant products based on current industry standards.	PS.03.02. Develop and implement a management plan for plant production. PS.03.04. Apply principles and practices of sustainable agriculture to plant production.	PS.03.02.06.a. Identify and categorize structures and technologies used for controlled atmosphere production of plants. PS.03.02.07.a. Summarize the use of hydroponic and aquaponic systems for plant production. PS.03.02.06.b. Compare and contrast the types of technologies used for controlled atmosphere production. PS.03.02.07.b. Compare and contrast the types of systems used in hydroponic and aquaponic plant production. PS.03.04.01.a. Compare and contrast the alignment of different production systems (conventional and organic) with USDA sustainable practices criteria. PS.03.04.02.a. Summarize national/international and local/regional food production systems.	

				PS.03.04.01.c. Research, prepare and defend plans for a plant systems enterprise that aligns with USDA sustainable practices criteria.	
Unit 7: Production Strategies	10%	PS.03. Propagate, culture and harvest plants and plant products based on current industry standards.	PS.03.02. Develop and implement a management plan for plant production. <i>ELA: RW.HS1.2.2</i>	PS.03.02.06.c. Research, select and defend technology for use in controlled atmosphere production. PS.03.02.04.c. Prepare and implement a plant production schedule based on predicted environmental conditions and desired market target (e.g., having plants ready to market on a specific day such as Mother's Day, organic production, low maintenance landscape plants, etc.). PS.03.02.06.c. Research, select and defend technology for use in controlled atmosphere production. PS.03.02.07.c. Research, select and defend the use of a hydroponic or aquaponic plant system. PS.03.03.03.a. Identify and summarize pest control strategies associated with integrated pest management and the	
			PS.03.03. Develop and implement a plan for integrated pest management for plant production		

			PS.03.04. Apply principles and practices of sustainable agriculture to plant production. <u>SCIENCE: SC.HS.3.9</u>	importance of determining economic threshold. PS.03.03.04.b. Examine and apply procedures for the safe handling, use and storage of pesticides including personal protective equipment and reentry interval. PS.03.04.01.a. Compare and contrast the alignment of different production systems (conventional and organic) with USDA sustainable practices criteria.	
Unit 8: Marketing	6%	PS.03. Propagate, culture and harvest plants and plant products based on current industry standards. ABS.04. Develop a business plan for an AFNR business.	PS.03.04. Apply principles and practices of sustainable agriculture to plant production. <u>SCIENCE: SC.HS.3.9</u> ABS.04.01. Analyze characteristics and planning requirements associated with developing business	PS.03.04.02.b. Compare and contrast the impact on greenhouse gas, carbon footprint of the national/international production system with local/regional production system markets PS.03.04.02.c. Select and defend the use of nationally/internationally grown or locally/regionally grown for a production operation system. ABS.04.01.03.a. Research and describe the components to include in a business plan for an AFNR business.	

		ABS.05. Use sales and marketing principles to accomplish AFNR business objectives	plans for different types of AFNR businesses. ELA: RW.HS1.2.3 RW.HS2.2.3 RW.HS1.3.2 RW.HS2.3.2 RW.HS1.4.1 RW.HS2.4.1 ABS.05.03. Assess marketing principles and develop marketing plans to accomplish AFNR business objectives. ELA: RW.HS1.2.3 RW.HS2.2.3 RW.HS1.3.2 RW.HS2.3.2 RW.HS1.1.2 RW.HS2.1.2	ABS.05.03.03.a. Research and summarize the purpose, components and process to develop marketing plans for AFNR businesses.	
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Academic Standards Alignment

Colorado CTE courses are required to integrate academic and essential skills into course content. The following academic standards have been identified as aligned to this course and should be integrated throughout instruction.

[CO CTE Academic Standards Resources](#) (Rubrics, integration strategies, etc)

[CDE Colorado Academic Standards Online](#) (Online standards lookup tool)

Standard 1: Oral Expression and Listening

Prepared Graduate 1: *Collaborate effectively as group members or leaders who listen actively and respectfully; pose thoughtful questions, acknowledge the ideas of others; and contribute ideas to further the group's attainment of an objective.*

Students collaborate to evaluate urban farm sites, develop production plans, manage indoor and outdoor growing systems, address infrastructure and resource challenges, and implement sustainable farming practices through laboratory activities, field experiences, and project-based learning.

Standard 2: Reading for All Purposes

Prepared Graduate 4: *Read a wide range of informational texts to build knowledge and to better understand the human experience.*

Students analyze urban agriculture resources, soil quality reports, water management information, production guides, market analyses, financing resources, and sustainable agriculture publications to understand successful urban farming systems.

Prepared Graduate 5: *Understand how language functions in different contexts, command a variety of word-learning strategies to assist comprehension, and make effective choices for meaning or style when writing and speaking.*

Students develop and apply specialized vocabulary related to urban agriculture, site assessment, soil health, controlled environment agriculture, water management, crop production, marketing, infrastructure, sustainability, and agricultural entrepreneurship to communicate effectively in urban farming settings.

Standard 3: Writing and Composition

Prepared Graduate 6: *Craft arguments using techniques specific to the genre.*

Students evaluate production strategies, site selection, infrastructure investments, marketing approaches, and resource management decisions, defending recommendations using scientific evidence, production data, and economic considerations.

Prepared Graduate 7: *Craft informational/explanatory texts using techniques specific to the genre.*

Students develop urban farm business plans, production schedules, marketing plans, site assessments, and technical reports explaining sustainable urban farming practices using scientific evidence and industry standards.

Standard 4: Research Inquiry and Design

Prepared Graduate 10: *Gather information from a variety of sources; analyze and evaluate its quality and relevance; and use it ethically to answer complex questions.*

Students research site suitability, soil quality, water resources, indoor and outdoor production systems, market opportunities, financing options, and sustainable production strategies to develop evidence-based urban farm management plans that support productive and economically viable urban agriculture

Note: *Mathematics and Science standards will be added in the future. Visit the [Colorado Academic Standards](#) page for the most current version.*