

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			
<b>Course Description</b>	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.					
<b>Note:</b>	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 <a href="https://www.cde.state.co.us/standardsandinstruction/essentialskills">https://www.cde.state.co.us/standardsandinstruction/essentialskills</a>						
Unit Number, Title and Brief Description	Suggested % of Instructional Time	CTE or Academic Standard Alignment	Competency / Performance Indicator	Outcome / Measurement	CTSO Integration	
<b>Unit 1: Purpose of the Urban Farm</b>	4%	<b>PS.04.</b> Apply principles of design in plant systems to enhance an environment (e.g. floral, forest landscape, and farm).	<b>PS.04.01.</b> Evaluating, identifying and preparing plants to enhance an environment.  <b>PS.04.02.</b> Create designs using plants	<b>PS.04.01.01.a.</b> Identify and categorize plants by their purpose (e.g., floral plants, landscape plants, house plants, etc.).  <b>PS.04.01.02.a.</b> Summarize the applications of design in agriculture and ornamental plant systems.  <b>PS.04.02.03.a.</b> Explain the concept of landscape ecology and summarize factors that shape the ecology of a landscape		

				(e.g., composition, structure, function, etc.).	
<b>Unit 2: Site Identification</b>	6%	<b>PS.01.</b> Develop and implement a crop management plan for a given production goal that accounts for environmental factors.	<b>PS.01.01.</b> Determine the influence of environmental factors on plant growth	<p><b>PS.01.01.01.a.</b> Identify and summarize the three measurements of light – color, intensity and duration – that affect plant growth.</p> <p><b>PS.01.01.02.a.</b> Identify and summarize the effects of air and temperature on plant metabolism and growth.</p> <p><b>PS.01.01.03.a.</b> Identify and summarize the effects of water quality on plant growth, (e.g., pH, dissolved solids, etc.).</p>	Land Evaluation CDE
<b>Unit 3: Land Access</b> <ul style="list-style-type: none"> <li>Determining site suitability</li> <li>Infrastructure needs</li> </ul>	4%	<b>PS.01.</b> Develop and implement a crop management plan for a given production goal that accounts for environmental factors.			
<b>Unit 4: Soil Quality</b>	10%	<b>PS.01.</b> Develop and implement a crop management plan for a given production goal that accounts for environmental factors.	<b>PS.01.02.</b> Prepare and manage growing media for use in plant systems.	<p><b>PS.01.02.01.a.</b> Identify the major components of growing media and describe how growing media support plant growth.</p> <p><b>PS.01.02.02.a.</b> Identify the categories of soil water.</p>	
<b>Unit 5: Water Resources</b>	10%	<b>PS.01.</b> Develop and implement a crop management plan for a given production goal that accounts for environmental factors.	<b>PS.01.01.</b> Determine the influence of environmental factors on plant growth. <a href="#">SCIENCE: SC.HS.2.6</a>	<b>PS.01.01.03.a.</b> Identify and summarize the effects of water quality on plant growth, (e.g., pH, dissolved solids, etc.).	

<p><b>Unit 6: Infrastructure</b></p>	<p>10%</p>	<p><b>PS.03</b> Propagate, culture, and harvest plants and plant products based on current industry standards.</p>	<p><b>PS.03.02.</b> Develop and implement a management plan for plant production.</p> <p><b>PS.03.04.</b> Apply principles and practices of sustainable agriculture to plant production.</p>	<p><b>PS.03.02.06.a.</b> Identify and categorize structures and technologies used for controlled atmosphere production of plants.</p> <p><b>PS.03.02.07.a.</b> Summarize the use of hydroponic and aquaponic systems for plant production.</p> <p><b>PS.03.02.06.b.</b> Compare and contrast the types of technologies used for controlled atmosphere production.</p> <p><b>PS.03.02.07.b.</b> Compare and contrast the types of systems used in hydroponic and aquaponic plant production.</p> <p><b>PS.03.04.01.a.</b> Compare and contrast the alignment of different production systems (conventional and organic) with USDA sustainable practices criteria.</p> <p><b>PS.03.04.02.a.</b> Summarize national/international and local/regional food production systems.</p> <p><b>PS.03.04.01.c.</b> Research, prepare and defend plans for a plant systems enterprise that aligns with</p>	
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				USDA sustainable practices criteria.	
<b>Unit 7: Production Strategies</b>	10%	<b>PS.03.</b> Propagate, culture and harvest plants and plant products based on current industry standards.	<b>PS.03.02.</b> Develop and implement a management plan for plant production. <a href="#">ELA: RW.HS1.2.2</a>	<p><b>PS.03.02.06.c.</b> Research, select and defend technology for use in controlled atmosphere production.</p> <p><b>PS.03.02.04.c.</b> 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.).</p> <p><b>PS.03.02.06.c.</b> Research, select and defend technology for use in controlled atmosphere production.</p> <p><b>PS.03.02.07.c.</b> Research, select and defend the use of a hydroponic or aquaponic plant system.</p> <p><b>PS.03.03.03.a.</b> Identify and summarize pest control strategies associated with integrated pest management and the importance of determining economic threshold.</p> <p><b>PS.03.03.04.b.</b> Examine and apply procedures for the safe handling, use and</p>	
			<b>PS.03.03.</b> Develop and implement a plan for integrated pest management for plant production		

				<p>storage of pesticides including personal protective equipment and reentry interval.</p> <p><b>PS.03.04.01.a.</b> Compare and contrast the alignment of different production systems (conventional and organic) with USDA sustainable practices criteria.</p>	
<b>Unit 8: Marketing</b>	6%	<p><b>PS.03.</b> Propagate, culture and harvest plants and plant products based on current industry standards.</p> <p><b>ABS.04.</b> Develop a business plan for an AFNR business.</p> <p><b>ABS.05.</b> Use sales and marketing principles to</p>	<p><b>PS.03.04.</b> Apply principles and practices of sustainable agriculture to plant production. <i>SCIENCE: SC.HS.3.9</i></p> <p><b>PS.03.04.</b> Apply principles and practices of sustainable agriculture to plant production. <i>SCIENCE: SC.HS.3.9</i></p> <p><b>ABS.04.01.</b> Analyze characteristics and planning requirements associated with developing business plans for different types of AFNR businesses. <i>ELA: RW.HS1.2.3</i> <i>RW.HS2.2.3</i> <i>RW.HS1.3.2</i> <i>RW.HS2.3.2</i> <i>RW.HS1.4.1</i></p>	<p><b>PS.03.04.02.b.</b> Compare and contrast the impact on greenhouse gas, carbon footprint of the national/international production system with local/regional production system markets</p> <p><b>PS.03.04.02.c.</b> Select and defend the use of nationally/internationally grown or locally/regionally grown for a production operation system.</p> <p><b>ABS.04.01.03.a.</b> Research and describe the components to include in a business plan for an AFNR business.</p> <p><b>ABS.05.03.03.a.</b> Research and summarize the purpose, components</p>	

		accomplish AFNR business objectives	<i>RW.HS2.4.1</i> <b>ABS.05.03.</b> Assess marketing principles and develop marketing plans to accomplish AFNR business objectives. <i>ELA: RW.HS1.2.3</i> <i>RW.HS2.2.3</i> <i>RW.HS1.3.2</i> <i>RW.HS2.3.2</i> <i>RW.HS1.1.2</i> <i>RW.HS2.1.2</i>	and process to develop marketing plans for AFNR businesses.	
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**CAS Academic Standards Alignment:** Online Version: <https://www.cde.state.co.us/apps/standards/>; Download version: <https://www.cde.state.co.us/apps/standards/>

**Reading, Writing, and Communicating:** (RST/WHST are Common Core Standards aligned; <http://www.corestandards.org/ELA-Literacy/RI/introduction-for-6-12/>)

- RW.HS1.1.2 – Organize and develop credible presentations tailored to purpose and audience.
- RW.HS2.1.2 – Integrate credible, accurate information into appropriate media and formats to meet an audience’s needs.
- RW.HS1.2.2 – Understand the logical progression of ideas in increasingly complex texts
- RW.HS1.2.3 – Utilize context, parts of speech, grammar, and word choice to understand narrative, argumentative, and informational texts.
- RW.HS2.2.3 – Understand how language influences comprehension of narratives, argumentative, and informational texts.
- RW.HS1.3.2 – Write informative/explanatory texts using complex ideas and organizational structures and features that are useful to audience comprehension.
- RW.HS2.3.2 – Write informational/explanatory texts to examine and convey complex ideas through the effective selection, organization, and analysis of content.
- RW.HS1.4.1 – Synthesize multiple, authoritative literary and/or informational sources, creating cohesive research projects that show an understanding of the subject.
- RW.HS2.4.1 – Synthesize multiple, authoritative literary and/or informational sources to answer questions or solve problems, producing well-organized and developed research projects that defend information, conclusions, and solutions.

**Math:**

**Science:**

- SC.HS.2.6 – A complex set of interactions determine how ecosystems respond to disturbances.

- SC.HS.3.9 – Resources availability has guided the development of human society and use of natural resources has associated costs, risks, and benefits.

### **Essential Skills:**

#### Problem Solver:

- **Critical Thinking and Analysis:** The ability to apply a deliberate process of identifying problems, gathering information, and weighing possible solutions, including: making choices rooted in understanding patterns, cause-and-effect relationships, and the impacts that a decision can have on the individual and others.
- **Creativity and innovation:** the ability to demonstrate curiosity and imagination through experimenting with new and emerging ideas.

#### Empowered Individual:

- **Self-Awareness:** the ability to understand one's own emotions, thoughts, and values, and how personal actions and emotions influence behavior across contexts, including: the capacity to recognize one's strength and limitations with a well-grounded sense of confidence and purpose.