

# Course Competency

## HOS 2005 Hydroponic Systems

### Course Description

This course will provide an overview of the different types of hydroponic systems. Students will learn about set-up requirements, maintenance, nutrient formulations, and growing plants in a soilless culture. The course will emphasize knowledge and skills required to run small hydroponic systems. (3 Hr. Lecture)

Course Competency	Learning Outcomes
<p><b>Competency 1:</b> The student will be able to define the characteristics of hydroponic growing and its applications by:</p>	<p>1. Critical thinking</p>
<ol style="list-style-type: none"> <li>1. Defining hydroponic growing compared to different types of growing practices including soilless growing, protected agriculture, and field production.</li> <li>2. Describing the history of hydroponics.</li> <li>3. Identifying the advantages and disadvantages of hydroponic systems.</li> <li>4. Discussing applications of hydroponic systems in industry including crops commonly produced using hydroponic methods.</li> </ol>	
<p><b>Competency 2:</b> The student will be able to describe plant production principles specifically relating to hydroponic production by:</p>	<ol style="list-style-type: none"> <li>1. Numbers / Data</li> <li>2. Critical thinking</li> </ol>
<ol style="list-style-type: none"> <li>1. Recognizing water as the primary component of hydroponic systems.</li> <li>2. Defining cultural requirements key for hydroponic production including light, nutrients, dissolved oxygen, and the greenhouse environment.</li> <li>3. Exploring various ways hydroponic crops are placed in a greenhouse including plant supports, wires, floats, etc.</li> <li>4. Listing different substrate materials and</li> </ol>	

<p>explain advantages and disadvantages of each.</p> <p>5. Diagramming an example hydroponic set up and label the system components.</p>	
<p><b>Competency 3:</b> The student will be able to define different types of hydroponic systems and their components by:</p>	<p>1. Critical thinking</p>
<p>1. Diagramming an example hydroponic set up and label the system components.</p> <p>2. Defining substrate systems and explore examples of substrate systems.</p> <p>3. Defining aggregate systems and explore examples of aggregate systems.</p>	
<p><b>Competency 4:</b> The student will understand how water quality impacts hydroponic systems by:</p>	<p>1. Critical thinking</p> <p>2. Environmental Responsibility</p>
<p>1. Examining how pH, alkalinity, and EC (electrical conductivity) affect water quality.</p> <p>2. Examining how biotic factors can impact water quality and hydroponic system functions.</p> <p>3. Taking water and preparing water samples for testing.</p> <p>4. Interpreting water sample results.</p>	
<p><b>Competency 5:</b> The student will understand nutrient solutions for hydroponic crops by:</p>	<p>1. Critical thinking</p> <p>2. Environmental Responsibility</p>
<p>1. Defining solution, concentration, and parts per million.</p> <p>2. Learning how to interpret crop nutritional requirements recommendations.</p> <p>3. Interpreting labels for hydroponic nutrient mixes.</p> <p>4. Discussing systems that use fertilizer injectors.</p>	

<b>Competency 6:</b> The student will set up and run a simple hydroponic system by:	1. Numbers / Data
<ol style="list-style-type: none"><li>1. Applying knowledge to create a simple hydroponic system.</li><li>2. Calculating amounts and mix hydroponic fertilizers following directions.</li><li>3. Running and troubleshooting the system.</li></ol>	

Updated: SPRING TERM 2022