

Docket Item:

Community College Approval: Chemeketa Community College, Certificate of Completion in Crop Health Management, within 01.1102 Agronomy and Crop Science.

Summary:

Chemeketa Community College proposes a new Certificate of Completion in Crop Health Management. Higher Education Coordinating Commission (HECC) staff completed a review of the proposed program. After analysis, HECC staff recommends approval of the degree as proposed.

Staff Recommendation:

The HECC recommends the adoption of the following resolution:
RESOLVED, that the Higher Education Coordinating Commission approve the following degree: CoC in Crop Health Management.



Chemeketa Community College seeks the Oregon Higher Education Coordinating Commission's approval to offer an instructional program leading to a Certificate of Completion in Crop Health Management.

Program Summary

The Crop Health Management Certificate provides education and training in disease, pest, and weed management; monitoring and scouting; biological control; plant fertility; and water quality issues. Course work prepares students to take and obtain their pesticide applicators license. The certificate prepares students for direct entry into the workforce and allows them to continue into the Horticulture degree program.

1. *Describe the need for this program by providing clear evidence.*

The Horticulture Advisory Committee identified and approved the need to develop a Crop Health Management Certificate. Nursery professionals and industry representation from Wilbur Ellis attended the meeting to identify the need for training in crop health and identified the following skills and knowledge necessary for a career in crop health: excellent judgment and decision making; critical problem solving; strong written and oral communication; knowledge and experience with biological control agents; pesticide applicators license; plant identification; background in soil and plant media, plant fertility, water quality, and crop sanitation; scouting monitoring, and report writing; and government regulations.

2. *Does the community college utilize systemic methods for meaningful and ongoing involvement of the appropriate constituencies?*

The college uses a range of sources to establish ongoing partnerships with its community constituencies. Some of these partnerships include: Northwest Commission on Colleges and Universities, the State Board of Education, Community College Workforce Development, employment advisory boards, student placement organizations, and licensing boards for appropriate occupations. The Crop Health Management Certificate was approved on February 26, 2020, by the Chemeketa Community College's Curriculum Committee and then approved by Chemeketa Community College's Board of Education on April 15, 2020. Chemeketa Community College has partnerships with local high schools to offer courses in their schools for college credit. These courses will prepare students for entry into the program soon after graduating. Other required and general education courses will be valuable in preparation for entrance into the program and the workforce.

Collaboration with workforce and economic development partners assists the college to build a skilled and trained workforce ready to enter their fields immediately upon completion of the program. The

Horticulture department that will be offering this Crop Health Management Certificate has an advisory committee composed of professionals from across the Willamette Valley:

Rod Bailey, Alder Springs Enterprises

Victoria Binning, OSU Extension Marion County

Taylor Burk, Hertiage Seedling Nursery

Javier Fernandez-Salvador, OSU Extension Marion County

Submitted 04/17/2020

Approved

Rod Bailey, Alder Springs Enterprises

Victoria Binning, OSU Extension Marion County

Taylor Burk, Hertiage Seedling Nursery

Javier Fernandez-Salvador, OSU Extension Marion County

Jim Fisher, retired from forest resources industry

Jared Hibbard-Swanson, Marion-Polk Foodshare

Brenda Knobloch, Salem-Keizer Education Foundation

Tim Ray, Dallas School District

Jeff Stone, Oregon Association of Nurseries

Val Tancredi, retired from irrigation industry

Bradley Weeks, Weeks Berry Nursery

Josh Zielinski, Alpha Nursery

3. ***Is the community college program aligned with appropriate education, workforce development, and economic development programs?***

The courses for this program have been approved by the advisory committee so that students are fully prepared for the workforce. The program courses are:

HOR112: Pesticides and Safety (2)

HOR125: Biological Control Agents (2)*

HOR215: Developing an Integrated Pest Management Program (2)*

HOR236: Integrated Pest Management: Weeds (3)

HOR237: Integrated Pest Management: Insects and Diseases (4)

HOR238: Plant Problem Diagnosis (2)

HOR265: Integrated Pest Management: Scouting and Monitoring* (2)

HOR275: Innovative Strategies for Water Management in Nurseries (2)

HOR280: Cooperative Work Experience (6)

SOIL205: Soil Science (4)

SOIL206: Plant Nutrition (2)

*New Course

These courses were approved by the advisory committee on June 15, 2018.

Chemeketa's Crop Health Management program will lead to employable skills at the end of the program. Individuals in this field earn an annual wage of \$75,052 per year and starting wages at \$57,470/year (qualityinfo.org), therefore it will allow these students to enter the workforce in a family-wage career.

4. Does the community college program lead to student achievement of academic and technical knowledge, skills, and related proficiencies?

The design of the program is a 31 credit hour approved Certificate. The primary audience for this program are students who wish to focus on working in horticulture or agriculture as Crop Health Specialist Quizzes. The learner outcomes for each course provide a range of skills to allow graduates to pursue employment in this industry:

HOR112: Pesticides and Safety

- Follow the laws and regulations for safe use and handling of pesticides.
- Evaluate pesticide toxicity and environmental hazards of an individual pesticide by reading and interpreting the label.
- Explain how to avoid polluting surface and groundwater with pesticides.
- Select the personal protective equipment necessary to safely apply pesticides.
- Calibrate pesticide spray equipment.
- Apply safeguards necessary for transportation and storage of pesticides.
- Prepare for the Oregon Pesticide Applicator's license exam.

HOR125: Biological Control Agents

- Define biological control.
- Identify the role of biological control in an IPM program.
- Know the different types of biological control agents.
- Identify the ways biological control is used for pest management.
- Understand current applications of biological control to manage pests.

HOR215: Developing an Integrated Pest Management Program

- Develop, use, and interpret IPM programs.
- Identify preventative IPM management methods.
- Evaluate effectiveness of management actions.
- Communicate Integrated Pest Management decisions with colleagues and clients.
- Locate and access reputable pest management resources.

HOR236 Integrated Pest Management: Weeds

- Identify weed species common to nurseries and greenhouses.
- Apply a scouting program for weeds in a greenhouse or nursery.
- Use preventive strategies for weed management in a greenhouse or nursery.
- Develop a weed management plan utilizing sanitation and cultural practices.
- Recommend appropriate herbicide treatments for weed outbreaks.

HOR237 Integrated Pest Management: Insects and Diseases

- Identify diseases and species of insects, mites, slugs, and snails that are pests or natural enemies of pests in the greenhouse and nursery.
- Develop a scouting program for diseases and insects and mites in a greenhouse or nursery.
- Develop a management program for a specific greenhouse pest.
- Analyze disease incidence in a greenhouse and discuss cultural practices that contribute to successful management.
- Apply best management practices for use of fungicides in the greenhouse and nursery.

HOR238 Plant Problem Diagnosis

- Diagnose a plant problem correctly based on available symptoms and signs.
- Distinguish environmental and cultural problems from those caused by biotic organisms.
- Identify and use appropriate resource books and websites to assist in identifying problems and suggesting appropriate solutions.

HOR265: Integrated Pest Management: Scouting and Monitoring

- Identify monitoring objectives.
- Understand the role of sampling in a monitoring program.
- Identify the most effective sampling method and tools.
- Develop, use, and interpret monitoring records.
- Design a monitoring program.

HOR275: Innovative Strategies for Water Management in Nurseries

- Trace a drop of water through the nursery from source to outlet.
- Describe conventional approaches to nursery/greenhouse water management.
- Summarize the regulations that apply to nursery water management.
- Evaluate the risks and benefits of working with re-circulated water or reclaimed wastewater.
- Compare/contrast the functions and infrastructure of different phytoremediation technologies.
- Illustrate ways in which phytotechnologies can enhance nursery production value.
- Design a water quality management plan for a nursery or greenhouse.

SOIL205: Soil Science

- Discuss the various functions of soils in natural and managed ecosystems.
- Explain the five primary soil forming factors and the four basic processes of soil formation.
- Describe the major characteristics, the general degree of weathering and soil development, and the worldwide distribution and use of the 12 soil orders.
- Understand the morphological, physical, and biological properties and processes of soil.
- Apply soil science concepts to plant production and to everyday experiences.

SOIL206: Plant Nutrition

- Know the 17 essential plant nutrients and their role in plant growth and production.
- Read and interpret soil, water and plant tissue analyses.
- Identify the different types of fertilizers and application methods, and calculate fertilizer requirements.

- Recognize common symptoms of nutrient deficiencies of Nitrogen (N), Phosphorus (P), Potassium (K), Calcium (Ca), Magnesium (M) and Sulfur (S).
- Make fertility recommendations for horticultural crops.

These courses lead to the following outcomes that students will be prepared to accomplish:

- Perform skills and use equipment necessary to propagate, transplant, fertilize, irrigate, prune, and otherwise regulate growth of plants.
- Recognize, name, and understand management requirements for plants commonly grown in Oregon and their associated pests.
- Demonstrate knowledge of government regulations, workplace safety, water regulations, pesticide safety, and crop sanitation.
- Evaluate production practices in terms of currently understood principles in sustainability.

Learning will be ensured through the assessment of these program outcomes with the following methods:

Quizzes

Exams

Article Summaries

Field trip synopsis

Lab notebooks

Lab reports

The listed assessments allow us to gauge content knowledge and practical skills gained.

Instruction methods within this program will be face-to-face lecture/lab, online, and hybrid. Students will not have general education courses for the degree. Any general education courses may be provided in a face-to-face, a hybrid, or an online environment. Program course lectures provide various hands-on activities.

The college has a unit planning process that includes a program assessment on an annual basis. Student, faculty, advisory committee, and administrative collaboration is incorporated to ensure students are prepared with appropriate skills to enter the workforce and meet the requirements of horticulture and/or agriculture.

5. Does the community college identify and have the resources to develop, implement, and sustain the program?

The Northwest Commission on Colleges and Universities (NWCCU) accredits Chemeketa Community College. The new program will have startup costs of \$3,353.

Year 0: Total Revenue: \$0 Total Expenditures: \$3,353 Net Income (Deficit): \$(3,353)

Year 1: Total Revenue: \$10,695 Total Expenditures: \$11,149 Net Income (Deficit): \$(454)

Year 2: Total Revenue: \$17,825 Total Expenditures: \$11,613 Net Income (Deficit): \$6,212

Year 3: Total Revenue: \$28,520 Total Expenditures: \$12,097 Net Income (Deficit): \$16,423

The horticulture program has two full-time faculty positions and two classified staff along with numerous adjunct faculty who generally work full-time in the industry. The program has the flexibility to use general fund dollars to expand the adjunct workforce to teach additional courses in the degree and to offset full-time workload as needed. Chemeketa Community College has begun programs over the last fifty years and has had the institutional support in hiring qualified and trained faculty to teach in all CTE programs.

This new program and its courses have been developed and approved by the employer-based advisory committee, as well as approved by the college's Curriculum Committee and Chemeketa Community College's Board of Education. Faculty will regularly participate in professional development activities to stay current and up to-date with industry changes and requirements, which will translate into the classroom learning environment. The program will reside at the main Salem campus.

The college has strong relationships with industry partners/employers and will continue to foster these relationships. This program has an employer-based advisory committee. The program will continue to work with local industry leaders and educational institutions to recruit students for this program.

Assurances

Chemeketa Community College has met or will meet the four institutional assurances required for program application.

1. *Access.* The college and program will affirmatively provide access, accommodations, flexibility, and additional/supplemental services for special populations and protected classes of students.
2. *Continuous Improvement.* The college has assessment, evaluation, feedback, and continuous improvement processes or systems in place. For the proposed program, there will be opportunities for input from and concerning the instructor(s), students, employers, and other partners/stakeholders. Program need and labor market information will be periodically re-evaluated and changes will be requested as needed.
3. *Adverse impact and detrimental duplication.* The college will follow all current laws, rules, and procedures and has made good faith efforts to avoid or resolve adverse *intersegmental* and *intrasegmental* impact and detrimental duplication problems with other relevant programs or institutions.
4. *Program records maintenance and congruence.* The college acknowledges that the records concerning the program title, curriculum, CIP code, credit hours, etc. maintained by the Office are the official records and it is the college's responsibility to keep their records aligned with those of the Office. The college will not make changes to the program without informing and/or receiving approval from the Office.