

Comprehensive Program Review Report



Program Review - Plant Science

Program Summary

2021-2022

Prepared by: Allison Ferry-Abee

What are the strengths of your area?: Note: All statistics (unless otherwise noted) are obtained from a student survey conducted in Spring 2021.

1. The Plant Science program provides opportunities for students to increase their career qualifications.

Based on student surveyed in Spring 2021, 73% percent are first time secondary students, and 25% already have a Bachelor's degree. Eighty-five percent of students already have a full time job in Ag, with the majority (60%) working more than 40 hours per week. The most common jobs were as a field checker/scout, propagation, ag labor management, and ag sales representative. One hundred percent of students are taking Plant Science classes to obtain a higher skill, higher paying job in Agricultural Support Services, including as a Pest Control Advisor (PCA), Certified Crop Advisor (CCA) , or Agronomist.

2. The Plant Science Program utilizes the Student Agriculture Experimental Farm (Sage Farm) and Tulare Campus farm to provide practical, hands-on training to all students in the program.

3. The job market for Plant Science students is extremely positive.

The California Pest Control Adviser's Association (CAPCA) estimates that for every Plant Science graduate (Associate's or Bachelor's) OR student with a Pest Control Advising license, there are at least 3 jobs available in California (Krista Frelinger, Education Committee Chair, CAPCA, personal communication). Note: LMI Data isn't very useful for this program because it doesn't identify the most important career sectors in Plant Science, particularly Advisors for the ag industry.

In order to make any pest control recommendations in the state of California, you must have a license from CA Department of Pesticide Regulation. It involves passing a series of exams and either two years of work experience in pest monitoring, or a Bachelor's degree in an agricultural field. In order to take the exam, you must also have completed 42 units of coursework in specific topics related to plant, biological, and animal science. Most Plant Science students are taking classes at COS in order to meet these unit requirements. Plant Science classes are designed to not only meet these specific requirements, but also prepare students to take the PCA exams.

Ninety-eight percent of Plant Science students are pursuing a PCA license.

4. Class times and formats have been changed to meet student demand.

In student surveys, ninety percent of plant science students preferred class times after 5pm. Thirty five percent of students could be available from 3 to 5pm. Only 15% were available to take classes during typical "school hours" from 8am to 3pm. Typical work hours for plant science students are 6 or 7am to 4pm.

Hybrid class formats allow students to experience hands-on learning while also offering reduced time required on campus. Average student drive time of Plant Science students to the Tulare campus is 25 minutes, with some students driving 1 hour and 30 minutes to attend classes.

All Plant Science core classes have been changed to a time frame between 3pm and 9pm, and most are offered in a hybrid format (in-person labs and lecture/discussion online).

5. Industry awareness and support for the Plant Science program has grown in the last several years, and the program has gained several valuable donations from community members for the new Student Agricultural Experimental Farm, (SAG E Farm). The rigor of the curriculum has also increased to match industry expectations.

What improvements are needed?: 1. Increase student enrollment in the program.

Recruitment into the program is a challenge. Typically, students are recruited into Ag programs through participation in high school FFA (Future Farmers of America) programs. However, unlike many other agricultural departments, the majority of plant science students did not participate in FFA. Only 24% of current students were involved in FFA in high school. Of the previous FFA students, about half of them were involved in plant related judging contests (such as Citrus Judging or Agronomy) and half were involved with animal showing or judging.

Most current Plant Science students heard about the program through a friend or work colleague. The Plant Science program needs to be promoted in industry, including educational events for ag workers and trade publications.

2. Increase in degrees and certificates.

Because a specific degree or certificate is not required to obtain a PCA license, many students do not pursue it. The achievements of students need to be tracked and impediments to degree obtainment need to be determined.

3. Instructor Continuing Education.

Continued training of the Plant Science instructor to maintain knowledge of current (and ever-changing) industry, safety and environmental standards.

Describe any external opportunities or challenges.: Because a specific degree or certificate is not required to obtain a PCA license, many students do not pursue it. The achievements of students need to be tracked and impediments to degree obtainment need to be determined.

Overall SLO Achievement: SLO achievement was assessed in 9 classes for the 2020-21 period. All achievement was satisfactory (above 70%) and was consistent with results from previous years.

Changes Based on SLO Achievement: SLOs were changed in four classes (PLSI 105, AG 125, PLSI 111 and PLSI 012) to update them to current standards and teaching methods of the instructor. All courses will continue to be monitored and assessed.

Overall PLO Achievement: Overall success rates have remained stable in the past two years, which is an achievement during COVID. The full time instructor has modified classes to a hybrid format while maintaining student success and class rigor.

FTES/FTEF ratios have decreases slightly from 10.33 in 2019-20 to 9.61 in 2020-21.

Changes Based on PLO Achievement: It is expected that increasing the number of evening classes will reflect an increase in enrollment in the upcoming evaluation cycle.

Outcome cycle evaluation: In the last three years, significant improvements have been made in curriculum, student assessment, and student learning opportunities.

Action: 2021-2022, Syllabi Review

Course syllabi for AG 003, AG 125, PLSI 001, PLSI 105, PLSI 106, PLSI 110, and PLSI 113 will be reviewed in light of promoting student equity.

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Implementation Timeline: 2021 - 2022

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Identify related course/program outcomes:

Person(s) Responsible (Name and Position): Allison Ferry-Abee

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Rationale (With supporting data):

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Action: 2021-2022, Strengthen Relationships with Industry Partners

Two to three large companies that hire Plant Science graduates will be identified. We will reach out to them and explore whether a Plant Science degree or certificate could increase job prospects, and explore what requirements they are seeking in new hires. If appropriate, these qualifications could be incorporated into the program. This could potentially increase marketability of COS Plant Science students with a degree or certificate, rather than just a PCA license.

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Implementation Timeline: 2021 - 2022

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Identify related course/program outcomes:

Person(s) Responsible (Name and Position): Allison Ferry-Abee, Plant Science Instructor

Rationale (With supporting data):

Priority: Medium

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 2.1 - Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years

District Objective 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points

Action: 2021-2022, Marketing Strategy

The Plant Science department will hold monthly or bi-monthly meetings with the Dean and relevant COS staff to explore marketing opportunities for the Plant Science program.

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Implementation Timeline: 2021 - 2022

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Identify related course/program outcomes:

Person(s) Responsible (Name and Position): Allison Ferry-Abee. Plant Science Instructor

Rationale (With supporting data):

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Link Actions to District Objectives

District Objectives: 2018-2021

District Objective 2.1 - Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years

District Objective 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5

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percentage points

Action: 2021-2022, High School Agriculture Teacher Survey

Local high school agriculture teachers will be surveyed to determine needs for a Crop Production course designed for Dual Enrollment.

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Implementation Timeline: 2021 - 2022

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Identify related course/program outcomes:

Person(s) Responsible (Name and Position): Allison Ferry-Abee

Rationale (With supporting data): The overarching goal for an Introduction to Crop Production course would be to provide a connection between high school ag programs and the College of the Sequoias. It would provide an opportunity for high school students to learn more about plant science, while maintaining the educational standards of COS. Local high school ag teachers need to be surveyed about their current lab capabilities to develop a course description that would be both applicable and meet the needs of students.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Action: 2020-2021, Update SLOs for PLSI 012, AG 125, PLSI 111 and PLSI 105

The program will develop new SLOs for PLSI 012 (Introduction to Fruit Science), AG 125 (Principles of Pesticide Use), PLSI 111 (Citrus Production), and PLSI 105 (Weeds and Poisonous Plants).

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Implementation Timeline: 2020 - 2021

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Identify related course/program outcomes: District Objective 2.1

Person(s) Responsible (Name and Position): Allison Ferry-Abee

Rationale (With supporting data): Original SLOs for the course were developed several years ago, and will be updated to current industry standards.

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Update on Action

Updates

Update Year: 2020 - 2021

10/11/2021

Status: Action Completed

SLOs were updated for PLSI 012, AG 125, PLSI 111 and PLSI 105.

Impact on District Objectives/Unit Outcomes (Not Required):

Resources Description

None (Active)

Why is this resource required for this action?:

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.):

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Link Actions to District Objectives

District Objectives: 2018-2021
District Objective 2.1 - Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years
District Objective 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points

Action: 2020-2021, Develop Online Compatible Curriculum for Lecture and Discussion in PLSI 106, PLSI 110, PLSI 113 and AG 003

Hybrid courses offer students more flexibility in times to complete course lecture material, especially for non-traditional students who work full time or are responsible for childcare. They also maintain hands-on learning activities by offering in-person labs. However, curriculum must be developed that is appropriate for an online format and maintains student interest. This action proposes development of online lecture material for the following courses: PLSI 106 (Fertilizers and Soil Amendments), PLSI 110 (Integrated Pest Management), PLSI 113 (Introduction to Viticulture) and AG 003 (Economic Entomology).

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Implementation Timeline: 2020 - 2021

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Leave Blank:

Identify related course/program outcomes:

Person(s) Responsible (Name and Position): Allison Ferry-Abee

Rationale (With supporting data):

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Update on Action
<i>Updates</i>
Update Year: 2020 - 2021
Status: Action Completed
Online hybrid curriculum was developed and implemented for all courses listed.
Impact on District Objectives/Unit Outcomes (Not Required):
10/11/2021

Link Actions to District Objectives

District Objectives: 2018-2021
District Objective 2.1 - Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years
District Objective 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points

Action: 2020-2021, Create Demonstration Videos for AG 003, PLSI 001, PLSI 106 and AG 125

Due to offering hybrid classes (online lecture, in-person lab) there is less time to demonstrate topic-specific principles in person with students. Additionally, because of the specialized nature of California agriculture, there are some concepts which are not available on internet platforms (such as YouTube). This action proposes creating videos for topics which cannot be found elsewhere.

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Implementation Timeline: 2020 - 2021

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Leave Blank:

Identify related course/program outcomes:

Person(s) Responsible (Name and Position): Allison Ferry-Abee

Rationale (With supporting data):

Priority: High

Safety Issue: No

External Mandate: No

Safety/Mandate Explanation:

Update on Action

Updates

Update Year: 2020 - 2021

10/11/2021

Status: Action Completed

Twelve demonstration videos were created to demonstrate key concepts for AG 003, PLSI 001, PLSI 106 and AG 125.

Impact on District Objectives/Unit Outcomes (Not Required):

Resources Description

Equipment - Instructional - Video recording and editing equipment. (Active)

Why is this resource required for this action?:

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.): 2015

Related Documents:

[Costs Videography ag department.xlsx](#)

Link Actions to District Objectives

District Objectives: 2018-2021

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