

# Bakersfield College

## Program Review – Annual Update

Program Name: Plant Science AS-T

Program Type:  Instructional  Student Affairs  Administrative Service  Other

**Bakersfield College Mission:** Bakersfield College provides opportunities for students from diverse economic, cultural, and educational backgrounds to attain Associate and Baccalaureate degrees and certificates, workplace skills, and preparation for transfer. Our rigorous and supportive learning environment fosters students' abilities to think critically, communicate effectively, and demonstrate competencies and skills in order to engage productively in their communities and the world.

Describe how the program supports the Bakersfield College Mission: The Plant Science AS-T is a mixture of Crops and Ornamental Horticulture courses. It is a Career Technical Education (CTE) program. Therefore, our certificate programs align with one of the core missions of Bakersfield College, and that is to supply trained individuals to work in vocational jobs of regional agricultural businesses. Horticultural supervisory level jobs have increased about 4% in Kern County and in California. The horticulture industry is estimated to have a statewide economic activity well over \$10 billion annually, with approximately 60% centered in Southern California. Services and uses account for slightly more than 50% of the total economic activity, production about 20%, and equipment and accessories about 30%.

All of our course offerings in Ornamental Horticulture are transferable to the CSU. This discipline can also lead to a four year degree or higher. Therefore, we also meet the third Budget Decision Criteria for transfer.

Program Mission Statement: The mission of the Bakersfield College Agriculture Department is to provide pertinent state-of-the-art education for vocational and transfer students in order to produce skilled Ornamental Horticulture professionals for the industry, both public and private. This is in accordance with the college mission to respond to student and community needs with efficiency and flexibility and with the BC institutional level learning outcomes, i.e. to demonstrate knowledge and abilities in a chosen area of study.

### **Instructional Programs only:**

- A. List the degrees and Certificates of Achievement the program offers: AS-T in Plant Science. The program also offers an Environmental Horticulture Associate in Science degree and a Certificate of Achievement.
- B. If your program offers both an A.A. and an A.S. degree in the same subject, please explain the rationale for offering both and the difference between the two.  
The AS is offered to students who wish to enter into the industry directly after completion of this degree. These courses prepare the student with a comprehensive knowledge of the subject matter, which allows them to enter into the workforce. It also creates a better prepared employee who has reading, writing and math skills.  
The Certificate program prepares the student who wishes to enter into the industry with the base knowledge that industry requires for entry level employees.  
The AS-T Plant Science degree follows the same concepts as previously stated with the exception that the horticulture science aspect is emphasized in the educational courses for agricultural transfer to a university.

C. If your program offers a local degree in addition to the ADT degree, please explain the rationale for offering both. The AS-T mandated by state directed course requirements includes both plant science and Environmental Horticulture as the areas of discipline. The AS is a complete degree for those who do not wish to transfer but enter the industry career field.

**Progress on Program Goals:**

A. List the program’s current goals. For each goal (minimum of 2 goals), discuss progress and changes. If the program is addressing more than two (2) goals, please duplicate this section. Please provide an action plan for each goal that gives the steps to completing the goal and the timeline.

Program Goal	Which institutional goals from the Bakersfield College Strategic Plan will be advanced upon completion of this goal? (select all that apply)	Progress on goal achievement (choose one)	Status Update – Action Plan
<p>1. 1. Facility Needs - Learning Environment Poor Horticulture lab conditions combined with a lack of funding does not allow instructors to teach with the newest technology. A lack of classroom space and updated lab facilities does not allow the goal to teach the latest technology.</p>	<p><input checked="" type="checkbox"/> 1: Student Learning  <input type="checkbox"/> 2: Student Progression and Completion  <input checked="" type="checkbox"/> 3: Facilities  <input checked="" type="checkbox"/> 4: Oversight and Accountability  <input type="checkbox"/> 5: Leadership and Engagement</p>	<p><input type="checkbox"/> Completed: _____ (Date)  <input type="checkbox"/> Revised: _____ (Date)  <input checked="" type="checkbox"/> Ongoing: <u>9/19/2016</u> (Date)</p>	<p>No Progress has been made. The horticulture lab has a space heater, evaporative cooler both with very noisy blowers when they are working. Neither heat nor cool efficiently. Toilets and wash sinks are on a septic tank system and need to be pumped multiple times per year. Labs are crowded and potentially dangerous working conditions. This is an area outside of the department’s ability to fund. A lack of classroom, lab and storage space will not allow the program to increase class size, work safely with larger enrollments and teach with present technology. Need lap tops or computers for class projects and assignments.</p>
<p>2. Develop industry partners to increase internships and</p>	<p><input checked="" type="checkbox"/> 1: Student Learning  <input checked="" type="checkbox"/> 2: Student Progression and Completion  <input checked="" type="checkbox"/> 3: Facilities  <input type="checkbox"/> 4: Oversight and Accountability  <input type="checkbox"/> 5: Leadership and Engagement</p>	<p><input type="checkbox"/> Completed: _____ (Date)  <input type="checkbox"/> Revised: _____ (Date)  <input checked="" type="checkbox"/> Ongoing: <u>9/19/2016</u> (Date)</p>	<p>Industry networking and partnership continues on an ongoing basis. Internship information is sent to the CTE internship personnel. The program has developed a</p>

hands-on learning			relationship with the CLCA California Landscape Contractors Association. Their support has developed work projects with professional, presentations and donations for the program. I am also broadcasting with the Country Garden radio program on KERN radio which promotes and reaches out to potential donors.
3. Develop stackable certificates recognized by C-ID and industry partners to increase internships, employability and student completion.	<input checked="" type="checkbox"/> 1: Student Learning <input checked="" type="checkbox"/> 2: Student Progression and Completion <input type="checkbox"/> 3: Facilities <input type="checkbox"/> 4: Oversight and Accountability <input type="checkbox"/> 5: Leadership and Engagement	<input type="checkbox"/> Completed: _____ (Date) <input type="checkbox"/> Revised: _____ (Date) <input checked="" type="checkbox"/> Ongoing: <u>9/19/2016</u> (Date)	I have been working with the Agriculture, Water & Environmental Technology Central Valley Consortium and Mapping Upwards Program with the Center for Occupational Research and Development (CORD); a US Department of Education grant. This program is creating stackable certificates that will be recognized by the Chancellors Office, C-ID, colleges and industry organizations. The committee is composed of 7 community colleges and 2 industry organizations.
4. A horticulture Lab with updated classroom, greenhouses, additional storage and shade house	<input checked="" type="checkbox"/> 1: Student Learning <input checked="" type="checkbox"/> 2: Student Progression and Completion <input checked="" type="checkbox"/> 3: Facilities <input checked="" type="checkbox"/> 4: Oversight and Accountability <input type="checkbox"/> 5: Leadership and Engagement	<input type="checkbox"/> Completed: _____ (Date) <input type="checkbox"/> Revised: _____ (Date) <input type="checkbox"/> Ongoing: _____ (Date) <input checked="" type="checkbox"/> <b>Not Addressed</b>	<p>Requesting a new classroom with air conditioning.</p> <p>The evaporative cooler and separate space heater when in operation is very loud. A microphone system has been used in the past to overcome the noise. The amplification system is no longer available.</p> <p>The bathroom is on a septic system and needs to be placed on a sewer line Due to clogging of the septic tank.</p> <p>The greenhouse needs new paint due to</p>

			<p>peeling and cracking. Greenhouses need modern technology controls are needed to operate independently of the horticulture technician. They are in constant breakdown and being repaired on a regular basis. M&amp;O has been called numerous times this summer and fall. Storage building for donations and to house equipment securely. Equipment was stolen this summer. Note: This is a different theft from previous years. The hand tools are housed in the greenhouse under work benches and being damaged by rust on some tools. A shade house structure is not stable and is threatening to fall down in an upcoming storm. This is a safety hazard. A lack of budgetary funding does not address the needs for the program. This program receives \$1,000 for the year for 9 courses with labs.</p>
<p>5. Replacement Horticulture Technician</p>	<p><input checked="" type="checkbox"/> 1: Student Learning  <input checked="" type="checkbox"/> 2: Student Progression and Completion  <input checked="" type="checkbox"/> 3: Facilities  <input type="checkbox"/> 4: Oversight and Accountability  <input type="checkbox"/> 5: Leadership and Engagement</p>	<p><input type="checkbox"/> Completed: _____ (Date)  <input type="checkbox"/> Revised: _____ (Date)  <input checked="" type="checkbox"/> Ongoing: <u>9/19/2016</u> (Date)</p>	<p>A replacement Horticulture Technician will be needed in the near future. The present technician is planning her retirement and will need to be replaced. Her position is very important for the program and the school's outreach program called Garden Fest. As a one instructor program a technician is very important for the smooth operation of labs run through the</p>

		horticulture lab. Her services are used by Agriculture, Ag Business, Crops, Forestry and Mechanized Agriculture lab classes at the horticulture facility.
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B. List new or revised goals (if applicable)

New/Replacement Program Goal	Which institutional goals will be advanced upon completion of this goal? (select all that apply)	Status Update – Action Plan
1. Increase the program budget	<input checked="" type="checkbox"/> 1: Student Learning <input checked="" type="checkbox"/> 2: Student Progression and Completion <input type="checkbox"/> 3: Facilities <input type="checkbox"/> 4: Oversight and Accountability <input type="checkbox"/> 5: Leadership and Engagement	Request more funding to pay for the lab supplies and replacement of tools.
2. See sections 1 and 4 in section A, above.	<input checked="" type="checkbox"/> 1: Student Learning <input checked="" type="checkbox"/> 2: Student Progression and Completion <input checked="" type="checkbox"/> 3: Facilities <input checked="" type="checkbox"/> 4: Oversight and Accountability <input type="checkbox"/> 5: Leadership and Engagement	Continue to place work orders and inform higher ups.
3. Create job opportunities through certificate completions.	<input checked="" type="checkbox"/> 1: Student Learning <input checked="" type="checkbox"/> 2: Student Progression and Completion <input type="checkbox"/> 3: Facilities <input type="checkbox"/> 4: Oversight and Accountability <input type="checkbox"/> 5: Leadership and Engagement	Complete the stackable certificate program and get it processed through C-ID and recognized by the horticulture industry.

**Best Practices:**

Programs often do something particularly well; usually they have learned through assessment – sometimes trial and error – what solves a problem or makes their programs work so well. These are often called Best Practices and can help others. Please share the practices your program has found to be effective.

- When presenting a power point, a slide will have a question about the topic. Example: “If you know which President established the USDA, United States Department of Agriculture, please stand up!” This keeps the students moving and interaction keeps them more engaged.
- Use real world applications relevant to the lesson plan.
- Keep students engaged with concentrated tests, not broad topic cumulative tests. (Not including final exams.)
- The Country Garden Radio program informs the public about classes and gardening but also draws attention to the Ag program, our classes and potential students for employment.

- The Country Garden Radio program also brings awareness and potential for donations and professional partnerships on projects.
- We are using the “Brent Damron Stretch” to wake them up and invigorate discussion. It also prepares them for physical labs.

**Program Analysis:**

Take a look at your trend data (all programs should have some form of data that is used to look at changes over time).

1. Please report on any unexpected changes or challenges that your program encountered this cycle:  
 Although gender and racial make have not changed the biggest challenge is the 32% increase in students. This also makes it difficult to teach labs without funding for most of the courses.  
 The second area of concern is the lack of an Ed Plan for 57% of the students enrolled in horticulture classes. This can also account for amount of completers for the program.
2. How does your trend data impact your decision making process for your program?  
 The trends show that numbers are increasing and better funding needs to found to teach with the latest technology for a hands-on program. Student Ed plans need to be looked at for all students who are enrolling in horticulture plant science classes.
3. Were there any changes to student success and retention for face-to-face, as well as online/distance courses?  
 Student success increased from 76% to 87% and retention has also increased from 84% to 94%.
4. Were there any changes to student demographics (age, gender, or ethnicity) for the past cycle?  
 Student demographics have remained about the same as previous years.

**Resource Request and Analysis:**

Resource Request		If Fulfilled, Discuss How Previous Year’s Requests Impact Program Effectiveness?
<b>Positions:</b> <i>Discuss the impact new and/or replacement faculty and/or staff had on your program’s effectiveness.</i>	<input type="checkbox"/> 1: Classified Staff <input type="checkbox"/> 2: Faculty	
<b>Professional Development:</b> <i>Describe briefly, the effectiveness of the professional development your program has been engaged in (either providing or attending) during the last cycle</i>	<input type="checkbox"/> 1: Provided Professional Development <input checked="" type="checkbox"/> 2: Attended Professional Development	I have been working with the Agriculture, Water & Environmental Technology Central Valley Consortium and Mapping Upwards Program with the Center for Occupational Research and Development (CORD); a US Department of Education grant. This program is creating stackable certificates that will be recognized by the Chancellors Office, C-ID, colleges and industry organizations. The committee is composed of 7 community colleges and 2 industry organizations. I have used my professional development at regional, state and national meetings and conferences

		to learn about educational programs across the country. I am currently working on online classes for program that will allow students from across the state to take courses and making this an online lab course. We will use industry and community colleges to create these labs to create a hands-on learning experience that will make the student more employable. This program also helps smaller programs to offer more classes to more students.
<b>Facilities:</b> <i>If your program received a building remodel or renovation, additional furniture or beyond routine maintenance, please explain how this request or requests impacts your program and helps contribute to student success.</i>	<input type="checkbox"/> 1: Space Allocation <input type="checkbox"/> 2: Renovation <input type="checkbox"/> 3: Furniture <input type="checkbox"/> 4: Other <input type="checkbox"/> 5: Beyond Routine Maintenance	We have not received any building improvements.
<b>Technology:</b> <i>If your program received technology (audio/visual – projectors, TV’s, document cameras) and computers, how does the technology impact your program and help contribute to student success?</i>	<input type="checkbox"/> 1: Replacement Technology <input checked="" type="checkbox"/> 2: New Technology <input type="checkbox"/> 3: Software <input type="checkbox"/> 4: Other _____	We have received wireless internet capabilities in the horticulture lab building. This improvement has allowed students to get a wireless signal that allows them to connect to the college website. Some classes have used this access to conduct classes that need to access the college website for educational planning.
<b>Resource Request</b>		<b>Discuss How Effective Request is for Student Success?</b>
<b>Other Equipment:</b> <i>If your program received equipment that is not considered audio/visual or computer equipment technology, please explain how these resources impact your program and help contribute to student success.</i>	<input type="checkbox"/> 1: Replacement <input type="checkbox"/> 2: New <input type="checkbox"/> 3: Other _____	None received.

<p><b>Budget:</b>  <i>Explain how your budget justifications will contribute to increased student success for your program. (Fiscal requests will be submitted by the faculty chair and/or area administrator.)</i></p>	<p>The Ornamental Horticulture program receives \$1,000 for the entire year to fund the programs lab classes. One class uses \$500 for supplies. The amount is extremely too low. Students sometimes need to bring their own lab supplies.</p>
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**Conclusions & Snapshot:**

Present any conclusions and findings about the program. This is an opportunity to provide a brief abstract or synopsis of your program’s current circumstances and needs. Consider this a snapshot of your program, if someone were to only read this portion of your annual program review.

The Plant Science AS-T program is not understood by many at this campus. It is a program designed by the state Chancellors office with 2 disciplines. The areas are Crop Science which concentrates on agricultural crop production and Environmental Horticulture which concentrates on urban plants and landscapes. Although the plants are similar in biology, the methods of production and outcomes are totally different. The program is growing with an increase of on-campus students, the dual-enrollment programs needs another instructor to help teach more classes on campus and at the high schools. With the additional students and a retiring technician, we need to hire a replacement for Sally Sterns. Even with the additional instructors they still need assistance with classes and labs.

We are working on ways to improve our program looking at the demand for agriculture classes for the Pest Control Adviser students, adding more class diversity to fulfill the CA Dept. of Pesticide Regulations’ educational requirements. We hope to turn the PCA program into a certificate program, along with the C-ID stackable Horticulture Certificates and new online classes.

The program has new ideas happening and our biggest obstacles are a lack of modern facilities, lack of rooms to teach in and the lack of a budget to properly teach a course. With the program growing, we have the determination to teach and we are educating ourselves with the latest industry knowledge to create better prepared students but if we can’t improve our infrastructure our students will continue to learn from YouTube videos.