The Comprehensive Instructional Program Review Report

1. College: Alameda

Discipline, Department or Program: Astronomy (ASTR)

Date: 11/14/15

Members of the Comprehensive Instructional Program Review Team: Patti Tsai

Members of the Validation Team:

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2. Narrative Description of the Discipline, Department or Program:

Please provide a mission statement or a brief general statement of the primary goals and objectives of the discipline, department or program. Include any unique characteristics, degrees and certificates the program or department currently offers, concerns or trends affecting the discipline, department or program, and a description of how the discipline, department or program aligns with the college mission statement.

The mission of the Astronomy Department at College of Alameda is to introduce students to the Universe and insight into its mysteries. Students will learn how observations have shaped theories of basic astronomical phenomena and the evolution of the Universe.

We provide comprehensive and flexible programs that empower students to achieve their goals. Classes are offered at a variety of times.

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3. Curriculum:

Please answer the following questions and/or insert your most recent curriculum review report (within the past 3 years) here.

Attach the Curriculum Review Report or Answer these Questions:

- Have all of your course outlines of record been updated or deactivated in the past three years? If not, list the courses that still need updating and specify when your department will update each one, within the next three years.

  ASTR 1 was last updated in Fall 2007, and will be updated in Spring 2016.

- What are the discipline, department or program of study plans for curriculum improvement (i.e., courses or programs to be developed, enhanced, or deactivated)?

A Distance Ed addendum for ASTR 1 will be filed when the course outline is updated in Spring 2016. Dietmar Krauss-Varban is interested in teaching ASTR 1 as an online course, tentatively beginning Fall 2016.

Curt Frank plans to investigate the possibility of splitting the course material for ASTR 1 into two courses: planetary systems and our Sun; and stars, galaxies, and the Universe. Each course would permit greater depth in exploring the material, but the courses could be taken independently rather than as part of a sequence. These courses would allow students a choice depending on their interests, and could increase enrollment in astronomy and the physical sciences.

- Please list your degrees and/or certificates. Can any of these degrees and/or certificates be completed through Distance Education (50% or more of the course online)? Which degree or certificate?

  N/A.

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4. Assessment:

Please answer the following questions and attach the TaskStream "At a Glance" report for your discipline, department, or program for the past three years. Please review the "At a Glance" reports and answer the following questions.

Questions:

- How does your discipline, department or program ensure that students are aware of the learning outcomes of the courses and instructional programs in which they are enrolled? Where are your discipline, department or program course and program SLOs published? (For example: syllabi, catalog, department website, etc. If they are on a website, please include a live link to the page where they can be found)

  Student Learning Outcomes are included in each instructor's syllabus, and are also published at http://alameda.peralta.edu/astronomy/.

- Briefly describe at least three of the **most significant changes/improvements** your discipline, department or program made in the past three years as a response to course and program assessment results. Please state the course number or program name and assessment cycle (year) for each example and attach the data from the "Status Report" section of TaskStream for these findings.

  Student Learning Outcomes in ASTR 1 have been regularly assessed since Fall 2013. Performance has been mixed. A number of instructors formulated plans for improvement, but left before they could assess changes in student performance resulting from changes in teaching. Therefore, we report here only one assessment from an instructor continuing to teach ASTR 1 at COA.

  Improvement 1.

  In Spring 2015, Astronomy 1 Section 22943, the instructor noted improvement in pre-test and post-test scores regarding basic astronomical phenomena. However, less than 70% of students answered questions correctly. He plans to update self-study questions and to explore using the course website for review problems, and to encourage students to make actual observations in the sky, and will report his findings this year.

Note: Attached are the Summary of the Assessment Cycle Results in 2013-2014, 2014-2015, and 2015-2016 Assessment Cycles. The current year includes ongoing assessment.

- Briefly describe three of the **most significant examples** of your discipline, department or program plans for course and /or program level improvement for the next three years as result of what you learned during the assessment process. Please state the course number or program name and attach the data from the "Assessment Findings and Action Plan" section for each example.

  Plan 1.
  Instructor from Spring 2015 will report findings regarding Improvement 1 this year. The normalized gain, as used to assess student learning on the Force Concept Inventory test in physics education, may be a more meaningful measure.

- Describe how assessment results for Distance Education courses and/or programs compare to the results for the corresponding face-to-face classes.

  N/A.

- Describe assessment results for courses with multiple sections. Are there similar results in each section?

  The current astronomy instructors began teaching ASTR 1 in Fall 2014 and Fall 2015. They plan to assess different Student Learning Outcomes so that the department obtains a global picture of student performance. This will also assist them in tracking improvements in student performance as they implement changes in their courses. As assessments continue, we will accumulate enough data to enable comparisons between multiple sections.

- Describe your discipline, department or program participation in assessment of institutional level outcomes (ILOs).

  Astronomy Student Learning Outcomes have been mapped to Institutional Learning Outcomes.

- How are your course and/or program level outcomes aligned with the institutional level outcomes? Please describe and attach the "Goal Alignment Summary" from TaskStream.

  The At-A-Glance report showing Outcomes Aligned with Institutional Learning Outcomes is attached.

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5. Instruction:

- Describe effective and innovative strategies used by faculty to involve students in the learning process.

  Teaching strategies include lecture, review, group discussion, in-class exercises, and astronomical observations.

- How has new technology been used by the discipline, department or program to improve student learning?

Instructors incorporate state-of-the-art images in their class presentations, and refer to current spacecraft missions and news articles. Instructors post curricular materials online, including slide presentations, videos, study guides, sample quiz questions and answers, and worksheets.

- How does the discipline, department, or program maintain the integrity and consistency of academic standards with all methods of delivery, including face to face, hybrid, and Distance Education courses?

  We offered ASTR 1 once as an online course in the Spring 2014 intersession. We hope to offer ASTR 1 as an online course as a regular part of the curriculum beginning Fall 2016.

- How do you ensure that Distance Education classes have the same level of rigor as the corresponding face-to-face classes?

  We recommend that all instructors who teach online courses should have experience teaching the same course in a face-to-face format, with a satisfactory evaluation, at least once every one or two years.

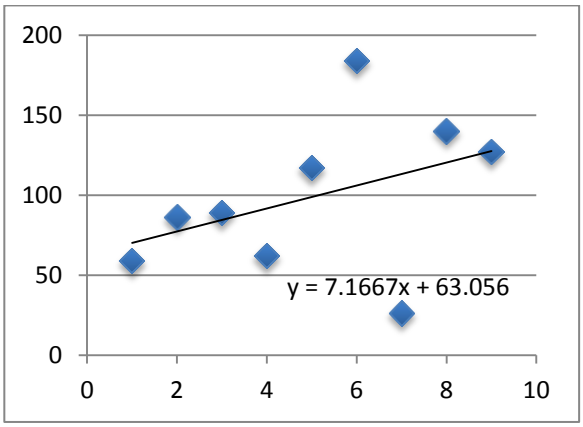
- Briefly discuss the enrollment trends of your discipline, department or program. Include the following:

  - Overall enrollment trends in the past three years

CAMPUS	Alameda
SUBJECT	ASTR
CATALOG_NBR	(All)
TIME_OF_DAY	(All)

CENSUS_TOTAL	Term								
Course	2012 Summer	2012 Fall	2013 Spring	2013 Summer	2013 Fall	2014 Spring	2014 Summer	2014 Fall	2015 Spring
ASTR 1 - INTRO TO ASTRONOMY	59	86	89	62	117	184	26	140	127
Grand Total	**59**	**86**	**89**	**62**	**117**	**184**	**26**	**140**	**127**

Average 98.89



  - An explanation of student demand (or lack thereof) for specific courses.

    A general increase in enrollments in ASTR 1 has occurred because we have increased our offerings from one to three sections per semester. Enrollment reached a peak in Spring 2014,

when we offered ASTR 1 during the spring intersession. There following Summer 2014 saw a drop in the enrollment of the regular ASTR 1 summer school class.

- Productivity for the discipline, department, or program compared to the college productivity rate.

College productivity rate: Averaged 16.73.

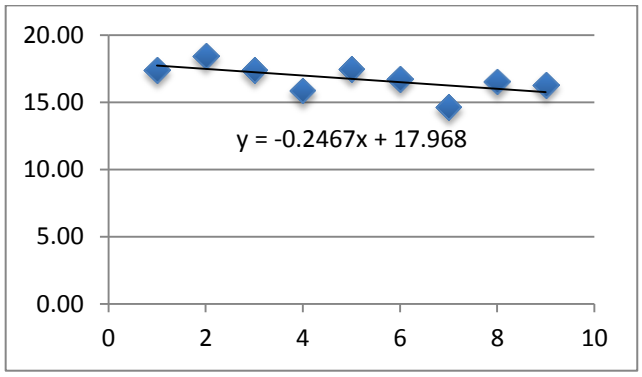
CAMPUS	Alameda

	Term								
	2012 SUMMER	2012 FALL	2013 SPRING	2013 SUMMER	2013 FALL	2014 SPRING	2014 SUMMER	2014 FALL	2015 SPRING
Productivity	17.37	18.45	17.35	15.86	17.46	16.68	14.63	16.52	16.28

Astronomy productivity rate: Averaged 28.79.

CAMPUS	Alameda
SUBJECT	ASTR

Productivity	Term								
	2012 SUMMER	2012 FALL	2013 SPRING	2013 SUMMER	2013 FALL	2014 SPRING	2014 SUMMER	2014 FALL	2015 SPRING
Total	30.22	43.00	44.50	31.76	29.14	23.00	13.32	22.97	21.17
Average		28.79							



The productivity of ASTR 1 has declined slightly over the period from 2012-15. However, it has remained significantly higher than the productivity for COA as a whole.

- Salient factors, if known, affecting the enrollment and productivity trends you mention above.

Astronomy has some inherent interest to students, and can be taught in relatively large classrooms. In addition, we have had several astronomy instructors who have been willing to accept large assignments.

- Are courses scheduled in a manner that meets student needs and demands? How do you know?

In Fall 2013, we expanded astronomy offerings to two sections per semester. Since Spring 2014, we have offered three sections per semester: morning, afternoon, and evening. We plan to introduce an online class in Fall 2016.

- Recommendations and priorities.

From Fall 2012 – Fall 2015, seven different instructors have taught astronomy, as some individuals have obtained full-time jobs at other institutions. We hope to retain our current instructors, who are doing a great job!

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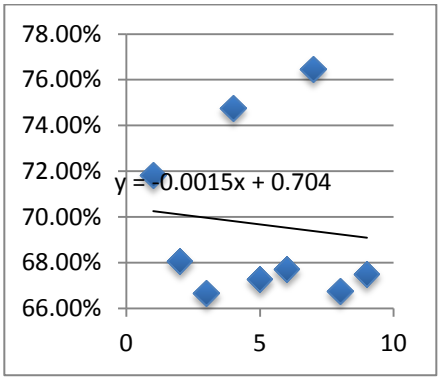
6. Student Success:

- Describe course completion rates *(% of students that earned a grade "C" or better or "Credit")* in the discipline, department, or program for the past three years. Please list each course separately. How do the discipline, department, or program course completion rates compare to the college course completion standard?

College course completion standard: Averaged 69.68%.

CAMPUS	Alameda

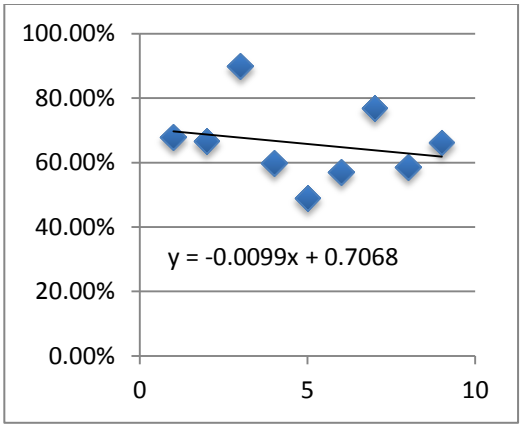
Success%	Term								
	2012 Summer	2012 Fall	2013 Spring	2013 Summer	2013 Fall	2014 Spring	2014 Summer		
Total	71.85%	68.08%	66.66%	74.76%	67.27%	67.71%	76.48%		
Average		69.68%							



Department/discipline course completion rates:

Success	Term								
Course	2012 Summer	2012 Fall	2013 Spring	2013 Summer	2013 Fall	2014 Spring	2014 Summer	2014 Fall	2015 Spring
ASTR 1 - INTRO TO ASTRONOMY	67.80%	66.67%	89.77%	59.68%	49.09%	57.07%	76.92%	58.57%	66.14%
Grand Total	**67.80%**	**66.67%**	**89.77%**	**59.68%**	**49.09%**	**57.07%**	**76.92%**	**58.57%**	**66.14%**

Average	65.75%



Course 1. ASTR 1 - INTRO TO ASTRONOMY (course name and number) 65.75% rate

Discussion:

The course completion rate for ASTR 1, is slightly lower than the course completion rate for the College of Alameda. This may be related to students' difficulty with mathematics. Although its use is minimized in the course, it is not possible to eliminate mathematics entirely.

- Describe course completion rates in the department **for Distance Education** courses (100% online) for the past three years. Please list each course separately. How do the department's Distance Education course completion rates compare to the college course completion standard?

  College course completion standard _____

  Department/discipline Distance Education (100% online) course completion rates:

  N/A – College of Alameda has not begun offering distance education in Astronomy.

  Discussion:
  N/A.

- Are there differences in course completion rates between face to face and Distance Education/hybrid courses? If so, how does the discipline, department or program deal with this situation?
  N/A.

- Describe the discipline, department, or program retention rates (After the first census, the percent of students earning any grade but a "W" in a course or series of courses). for the past three years. How does the discipline, department, or program retention rate compare to the college retention standard?

  College retention standard averaged 82.98%.

CAMPUS	Alameda

	Term

	2012 Summer	2012 Fall	2013 Spring	2013 Summer	2013 Fall	2014 Spring	2014 Summer	2014 Fall	2015 Spring
Retention%	84.25%	84.34%	80.16%	86.11%	81.55%	80.75%	86.11%	82.03%	81.54%
Average	82.98%								

Discipline, department, or program retention rates

Year 1. 89.52%

Year 2. 77.18%

Year 3. 81.19%

Average: 82.63%

CAMPUS	Alameda
SUBJECT	ASTR
CATALOG_NBR	(All)

Retention	Term								
Course	2012 Summer	2012 Fall	2013 Spring	2013 Summer	2013 Fall	2014 Spring	2014 Summer	2014 Fall	2015 Spring
ASTR 1 - INTRO TO ASTRONOMY	89.83%	82.14%	96.59%	75.81%	84.55%	71.20%	84.62%	77.86%	81.10%
Grand Total	**89.83%**	**82.14%**	**96.59%**	**75.81%**	**84.55%**	**71.20%**	**84.62%**	**77.86%**	**81.10%**
		Year 1 89.52%			Year 2 77.18%			Year 3 81.19%	

Discussion:
The average retention rate is the same as the college-wide rate.

- Which has the discipline, department, or program done to improve course completion and retention rates? What is planned for the next three years?

  The process of assessing student learning outcomes may lead to an improvement of completion rates, especially if we can retain astronomy instructors, providing more continuity to the development of pedagogy.

- Which has the discipline, department, or program done to improve the number of degrees and certificates awarded? Include the number of degrees and certificates awarded by year, for the past three years. What is planned for the next three years?

  N/A.

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7. Human, Technological, and Physical Resources (including equipment and facilities):

- Describe your current level of staff, including full-time and part-time faculty, classified staff, and other categories of employment.

Full-time faculty headcount	0
Part-time faculty headcount	2
Total FTEF faculty for the discipline, department, or program	0.6 FTEF
Full-time/part-time faculty ratio	0:2
Classified staff headcount	N/A

- Describe your current utilization of facilities and equipment.
  Currently, the adjunct instructors teach in a variety of classrooms, including the geography classroom, D222, when available. They meet students for office hours in D227 and/or their classrooms.

- What are your key staffing needs for the next three years? Why? Please provide evidence to support your request such as assessment data, student success data, enrollment data, and/or other factors.

  We hope to retain our current astronomy instructors, providing more continuity to our astronomy offerings.

- What are your key technological needs for the next three years? Why? Please provide evidence to support your request such as assessment data, student success data, enrollment data, and/or other factors.

  Classroom projectors should have high resolution displays for showing astronomical images.

- What are your key facilities needs for the next three years? Why? Please provide evidence to support your request such as assessment data, student success data, enrollment data, and/or other factors.

  - *An office, possibly to be shared with geography and chemistry, would provide space for faculty to work and meet with students.*
  - *Projector and podium placement should allow the instructor to face the students and look at the PC. In some current classrooms, the laptop from which the material is shown needs to be placed on a desk. When standing behind the desk, the projector blinds the lecturer, which makes it impossible to see the laptop screen (to synchronize what is said with the projected material) - which often makes it necessary to step aside and then also glance in the direction of the screen (instead of the laptop or looking towards the audience).*
  - *Switches for classroom lights should be located near lecture podium.*

- Please complete the Comprehensive Instructional Program Review Prioritized Resource Requests Template included in Appendix A.

8. Community, Institutional, and Professional Engagement and Partnerships:

- Discuss how faculty and staff have engaged in institutional efforts such as committees, presentations, and departmental activities. Please list the committees that full-time faculty participate in.

  Could be taught by new full-time physics faculty. Adjunct faculty are encouraged to participate as fully as possible in the campus community.

- Discuss how faculty and staff have engaged in community activities, partnerships and/or collaborations.

  Andrew Fittingoff participated in a workshop sponsored by the Center For Astronomy and Physics Education Research in Fall 2014.

  Curt Frank regularly meets astronomy students for evening viewing on the observatory deck of the Chabot Space and Science Center.

- Discuss how adjunct faculty members are included in departmental training, discussions, and decision-making.

  Adjunct faculty participate in department meetings each semester as they are available, and in department matters through email. In Fall 2014, we discussed the hiring process for full-time community college positions. In the Fall 2015 department meeting, we discussed analyzing students' written work, and using this to build our own understanding of how to address difficult concepts. As stated in a recent blog post by Dan Meyer, "It's the students' job to inquire into the material, and while they do that, it's my job to inquire into their thinking."

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9. Professional Development:

- Please describe the professional development needs of your discipline or department. Include specifics such as training in the use of classroom technology, use of online resources, instructional methods, cultural sensitivity, faculty mentoring, etc.

  Dietmar Krauss-Varban, who began teaching ASTR 1 in Fall 2015 and is still developing his curriculum, is interested in teaching ASTR 1 via an online format beginning Fall 2016. He may enroll in classes in Educational Technology in the Spring 2016 semester.

10. **Discipline, Department or Program Goals and Activities:**

- Briefly describe and discuss the discipline, department or program goals and activities for the next three years, including the rationale for setting these goals. NOTE: Progress in attaining these goals will be assessed in subsequent years through annual program updates (APUs).

- Then fill out the goal setting template included in Appendix B. which aligns your discipline, department or program goals to the college mission statement and goals and the PCCD strategic goals and institutional objectives.

- **Goal 1. Curriculum:**

  Activities and Rationale:

  a. Update course outline for ASTR 1 and submit distance ed addendum in Spring 2016.
  b. Investigate offering 2 astronomy courses: on our solar system, and outside our solar system.

- **Goal 2. Assessment:**

  Activities and Rationale:
  If we are able to retain our astronomy instructors through a few assessment cycles, the results of assessment may lead to improvement of pedagogy and improved assessments.

- **Goal 3. Instruction:**

  Activities and Rationale:
  Offer ASTR 1 online beginning in Fall 2016.

- **Goal 4. Student Success:**

  Activities and Rationale:
  The results of assessment should lead to improvement of pedagogy and improved assessments.

- **Goal 5. Professional Development, Community, Institutional and Professional Engagement and Partnerships:**

  Activities and Rationale:
  Provide opportunities for students to participate in astronomical observations.

- Please complete the Comprehensive Instructional Program Review Integrated Goal Setting Template included in Appendix B.

Appendices

Appendix A

Comprehensive Instructional Program Review
Prioritized Resource Requests Summary

College: Alameda

Discipline, Department or Program: Astronomy (ASTR)

Contact Person: P. Tsai

Date: 11/14/15

Resource Category	Description	Priority Ranking (1 – 5, etc.)	Estimated Cost	Justification (page # in the program review narrative report)	District-College Goal & Institutional Learning Outcome
Human Resources: Faculty					
Human Resources: Classified					
Human Resources: Student Workers					
Technology	1. High resolution projectors.	1.		Sec. 7. Human, Technological, and Physical Resources.	ILO #2
Equipment					
Supplies					
Facilities	2. Improved projector and podium placement 3. Improved location of switches for classroom lights 4. Office	2, 3, 4		Sec. 7. Human, Technological, and Physical Resources.	ILO #2
Professional Development					
Other (specify)					

Appendix B

PCCD Program Review
Alignment of Goals Template

College: Alameda

Discipline, Department or Program: Astronomy (ASTR)

Contact Person: P. Tsai

Date: 11/14/15

Discipline, Department or Program Goal	Institutional Learning Outcome	PCCD-College Goal and Institutional Objective
1. Curriculum *a. Update course outline for ASTR 1 and submit distance ed addendum in Spring 2016.* *b. Investigate offering 2 astronomy courses: on our solar system, and outside our solar system.*	1	A, C
2. **Assessment**: *If we are able to retain our astronomy instructors through a few assessment cycles, the results of assessment may lead to improvement of pedagogy and improved assessments.*	2	A, C
3. **Instruction:** *Offer ASTR 1 online beginning in Fall 2016.*	1	A, C
4. **Student Success:** *The results of assessment should lead to improvement of pedagogy and improved assessments.*	2	A, C
5. **Prof. Development, Community, Engagement, Partnerships:** *Provide opportunities for students to participate in astronomical observations.*	2	B

Appendix C

Program Review Validation Form and Signature Page

College:

Discipline, Department or Program:

Part I. Overall Assessment of the Program Review Report

Review Criteria	Comments: Explanation if the box is not checked
☐ 1. The narrative information is complete and all elements of the program review are addressed. ☐ 2. The analysis of data is thorough. ☐ 3. Conclusions and recommendations are well-substantiated and relate to the analysis of the data. ☐ 4. Discipline, department or program planning goals are articulated in the report. The goals address noted areas of concern. ☐ 5. The resource requests are connected to the discipline, department or program planning goals and are aligned to the college goals.	

Part II. Choose one of the Ratings Below and Follow the Instructions.

Rating	Instructions
☐ 1. Accepted.	1. Complete the signatures below and submit to the Vice President of Instruction.
☐ 2. Conditionally Accepted.	2. Provide commentary that indicates areas in the report that require improvement and return the report to the discipline, department or program chair with a timeline for resubmission to the validation chair.
☐ 3. Not Accepted.	3. Provide commentary that indicates areas in the report that require improvement and return the report to the discipline, department or program chair with instructions to revise. Notify the Dean and Vice President of Instruction of the non-accepted status.

Part III. Signatures

Validation Team

_____	_____	_____
Print Name	Signature	Date

Validation Team

_____	_____	_____
Print Name	Signature	Date

Received by Vice President of Instruction

_____	_____	_____
Print Name	Signature	Date

College of Alameda

MISSION

The Mission of College of Alameda to serve the educational needs of its diverse community by providing comprehensive and flexible programs and resources that empower students to achieve their goals.

VISION

The Vision of College of Alameda is that we are a diverse, supportive, empowering learning community for seekers of knowledge. We are committed to providing a creative, ethical and inclusive environment in which students develop their abilities as thinkers, workers and citizens of the world.

VALUES

We use this vision to choreograph three central themes in our quest for "learning excellence" and services to students.

∗ Academic Excellence

∗ Budgetary Competence

∗ Community Engagement

We call these "our ABCs" emphasizing crucial success indicators for our students in achieving an enhanced capacity to pursue their dreams!

Institutional Learning Outcomes

1. Solve problems and make decisions in life and work using critical thinking, quantitative reasoning, community resources, and civil engagement.

2. Use technology and written and oral communication to discover, develop, and relate critical ideas in multiple environments.

3. Exhibit aesthetic reflection to promote, participate and contribute to human development, expression, creativity, and curiosity.

4. Engage in respectful interpersonal communications, acknowledging ideas and values of diverse individuals that represent different ethnic, racial, cultural, and gender expressions.

5. Accept personal, civic, social and environmental responsibility in order to become a productive local and global community member

District-College Strategic Goals & Institutional Objectives

Strategic Focus: Our focus this year will be on student success in the core educational areas of basic skills/ESOL (English for speakers of other languages), transfer, and CTE (career technical education) by encouraging accountability, outcomes assessment, innovation and collaboration while spending within an established budget.

Strategic Goals	
A: Advance Student Access, Equity, and Success	**A.1 Student Access:** Increase enrollment for programs and course offerings in the essential areas of basic skills/ESOL, CTE and transfer to achieve the District target of 19,355 RES FTES. **A.2 Student Success:** Increase students' participation in SSSP eligible activities by 50%, with specific emphasis on expanding orientations, assessments, academic advising and student educational plans. **A.3 Student Success:** Using baseline data, increase student engagement in activities such as student governance, student life activities, Student leadership development, service learning programs, learning communities, student employment, etc. **A.4 Student Equity Planning:** Address the achievement gap through fully developing and implementing the student success and equity plans at each campus.
B: Engage and Leverage Partners	**B.1 Partnerships:** Develop a District-wide database that represents our current strategic partnerships and relationships. **B.2. Partnerships:** Expand partnerships with K-12 institutions, community based organizations, four-year institutions, local government, and regional industries and businesses.
C: Build Programs of Distinction	**C.1 Student Success:** Develop a District-wide first year experience/student success program. **C.2 Student Success:** Develop an innovative student success program at each college.
D: Strengthen Accountability, Innovation and Collaboration	**D.1 Service Leadership:** Provide professional development opportunities for faculty, staff and administrators that lead to better service to our students and colleagues. **D.2 Institutional Leadership and Governance:** Evaluate and update policies and administrative procedures and the PBIM participatory governance structure.