

*The Program Review process should serve as a mechanism for the assessment of performance that recognizes and acknowledges good performance and academic excellence, improves the quality of instruction and services, updates programs and services, and fosters self-renewal and self-study. Further, it should provide for the identification of weak performance and assist programs in achieving needed improvement. Finally, program review should be seen as a component of campus planning that will not only lead to better utilization of existing resources, but also lead to increased quality of instruction and service. A major function of program review should be to monitor and pursue the congruence between the goals and priorities of the college and the actual practices in the program or service.*

~Academic Senate for California Community Colleges

## **INSTRUCTIONS**

This *Annual Update for Program Review and Planning* is due each year that your *Comprehensive Program Review and Planning* report is not due.

(For information about program review cycles, see Instructional and Student Services program review rotation schedules posted online in their respective sections of the program review webpage: [http://collegeofsanmateo.edu/prie/program\\_review/program\\_review.php](http://collegeofsanmateo.edu/prie/program_review/program_review.php))

### **Resources for Supporting Documentation:**

A listing of resources and documents which provide data or information for each section is included at the end of this document, after the final signature page. These resources are posted online and their URLs are listed at the end of this document.

(You may delete this section, when you submit your final program review.)

### **Next Steps:**

All *Annual* and *Comprehensive Program Review and Planning* reports are due March 25, 2010. This date is aligned with CSM's *Integrated Planning Calendar*.  
(See: [http://collegeofsanmateo.edu/prie/institutional\\_documents.php](http://collegeofsanmateo.edu/prie/institutional_documents.php).)

Upon its completion, please email this *Program Review and Planning* report to the Vice President of Instruction, the Vice President of Student Services, the appropriate division dean, the CSM Academic Senate President, and the Dean of Planning, Research, and Institutional Effectiveness (PRIE).

Diana Bennett, Academic Senate President, [bennettd@smccd.edu](mailto:bennettd@smccd.edu)  
Susan Estes, Vice President of Instruction, [estes@smccd.edu](mailto:estes@smccd.edu)  
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John Sewart, Dean (PRIE), [sewart@smccd.edu](mailto:sewart@smccd.edu)

**DEPARTMENT OR PROGRAM:**

**DIVISION:** Math/Science

1. **BRIEF DESCRIPTION OF PROGRAM:**

The Astronomy Department offers labs and courses in introductory astronomy. These courses and labs enable students to discover and critically analyze the universe around them. The student will get a basic understanding of the universe and all that is contained within it. More advanced students can use the observatory to pursue independent research on spectroscopy and photometry. All of the courses and labs are UC and CSU transferrable.

2. **Based on the elements in your Core Program and Student Success Indicators (provided by PRIE for each program) and the goals stated in your most recent Program Review, please identify any key successes and challenges.**

Improved and expanded our observational and imaging technology and methodology for our students.
Increased our enrollment.
Increased the number of sections.
Increased our outreach program to the community.
Students are participating in a NASA sponsored program to bring research experiences into the classroom.

3. **Are you on track for meeting the goals/targets that your program identified in its most recent Program Review? If not, please explain possible reasons why. If needed, update your goal/targets based on these reasons.**

We have exceeded our goals and expectations from the last program review.

4. **Have you identified any new goals or projects for the program to focus on during this next year? Please explain (grants, stipends, initiatives, etc.).**

The first goal is to implement an AA/AS degree program in Astronomy. It would be one of very few in the state. Such a degree program would enable our students to compete competitively in astronomy programs at major colleges and universities. In addition, such a degree would enable our graduates to teach astronomy in the secondary schools.

A second goal is to upgrade our observatory to reflect the present techniques used to gather and analyze astronomical data. This will train students for today's methodology in astronomy and makes full usage of our telescopes and other equipment. We are requesting an SBIG CCD camera to further those goals.

A third goal is to upgrade our planetarium shows. As research in astronomy advances, it is essential to bring that knowledge to our students. One essential component of making the latest findings accessible to our students is new planetarium shows. Furthermore,

since we offer many planetarium programs to the general public, It is essential that our planetarium has the most up-to-date shows.

A fourth goal is to implement the teaching and applicability of spectral energy distributions or (SEDs) into astronomy classes and labs. Among other strategies, students would learn how an SED can be used to determine the amount and concentration of dust inherent in the interstellar medium. This would help students to understand the nature of star birth. The NASA funded program, NITARP, NASA/IPAC Teacher Archive Research Program, is being used by the department, to implement this pedagogy.

5. Are there any critical issues you expect to face in the coming year? How will you address those challenges?

The main critical issue is the uncertainty in the community college budget. Student class size and equipment funding are directly dependent on decisions made in Sacramento.

6. **STUDENT LEARNING OUTCOMES (SLOs) AND ASSESSMENT FOCUS FOR THIS YEAR:**

- a. Academic areas: Identify at least one course SLO on which to focus. Describe the assessment strategies you will use and your method of reflection and documentation for this cycle.

The Astronomy 100 course SLO to be identified and assessed is:  
"Describe the basic purpose of black holes". There will be several questions pertaining to this SLO during a midterm exam in each section of Astronomy 100. Using a Scantron, the correct and incorrect answers will be tabulated and percentages derived.

- b. Student services areas: TBD

7. **SUMMARY OF RESOURCES NEEDED TO REACH PROGRAM ACTION STEPS**

*(Data resources: Educational Master Plan, 2008, Institutional Priorities, 2008-2011, College Index, 2009-2010, GE-SLOs, SLOs; department records; Core Program and Student Success Indicators; previous Program Review and Planning reports)*

- a. In the matrices below, itemize the resources needed to reach program action steps and describe the expected outcomes for program improvement.\* Specifically, describe the potential outcomes of receiving these resources and the programmatic impact if the requested resources cannot be granted.

\*Note: Whenever possible, requests should stem from assessment of SLOs and the resulting program changes or plans. Ideally, SLOs are assessed, the assessments lead to planning, and the resources requested link directly to those plans.

Full-Time Faculty Positions Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, <u>briefly</u> indicate how the requested resources will link to achieving department action steps based on SLO assessment.
None requested until we have implemented AS/AA program in astronomy	Granting AS/AA degrees in astronomy to students	Increase in the number of 200 level courses on a permanent bases require that kind of resource

Classified Positions Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, <u>briefly</u> indicate how the requested resources will link to achieving department action steps based on SLO assessment.
None requested	N/A	N/A

- b. For instructional resources including equipment and materials, please list the exact items you want to acquire and the total costs, including tax, shipping, and handling. Include items used for instruction (such as computers, furniture for labs and centers) and all materials designed for use by students and instructors as a learning resource (such as lab equipment, books, CDs, technology-based materials, educational software, tests, non-printed materials). Add rows to the tables as necessary. If you have questions as to the specificity required, please consult with your division dean. Please list by priority.

Resources Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, <u>briefly</u> indicate how the requested resources will link to achieving department action steps based on SLO assessment.
<b>Item:</b> MacBook Computers. <b>Number:</b> 11 <b>Vendor:</b> Apple Computer <b>Unit price:</b> 949 <b>Total Cost:</b> \$10,439 <b>Status*:</b> Replacement and repair	These computers are needed for the Astronomy labs. We presently have 9 computers in use by ~ 40 students/lab. This means that students have to, at least triple or quadruple up when using them in lab experiments.	Enables students to complete labs without having to triple or quadruple up.

Resources Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, briefly indicate how the requested resources will link to achieving department action steps based on SLO assessment.
<p><b>Item:</b> ST10XME CCD Camera w/CFW-10 Filter Wheel and various Filters  <b>Number:</b> 1  <b>Vendor:</b> SBIG  <b>Unit price:</b> \$8509  <b>Total Cost:</b> \$8509  <b>Status*:</b> New</p>	<p>The acquisition of this camera will facilitate imaging in our Observational Astronomy Lab and Special projects courses. We presently have two telescopes, outfitted with one CCD camera, that are used by students for astro imaging. Outfitting the second telescope with this camera, will increase student productivity. It will update our lab experiments to be on par with other institutions.</p>	<p>Enables students to better gather and analyze astronomical data, whether that data is spectroscopic or photometric in nature..</p>

Resources Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, briefly indicate how the requested resources will link to achieving department action steps based on SLO assessment.
<p><b>Item:</b> Planetarium shows  <b>Number:</b> 2  <b>Vendor:</b> TBD  <b>Unit price:</b> \$5,000  <b>Total Cost:</b> \$10,000  <b>Status*:</b> Upgrade of planetarium visuals</p>	<p>The present planetarium shows that we have, are somewhat dated. Acquisition of one or two new shows would be concurrent with present astronomical knowledge and be more attractive to students and the general public</p>	

Resources Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, briefly indicate how the requested resources will link to achieving department action steps based on SLO assessment.
<p><b>Item:</b> Black Box remote 4-port USB extender  <b>Number:</b> 2  <b>Vendor:</b> Black Box Network Services  <b>Unit price:</b> \$424.95  <b>Total Cost:</b> \$849.90  <b>Status*:</b> New</p>	<p>This USB extender will enable the computers, controlling our observatory telescopes, to communicate faster, thereby enhancing imaging efficiency.</p>	<p>Enables students to do hands on experiments, gather and analyze astronomical data.</p>

Resources Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, briefly indicate how the requested resources will link to achieving department action steps based on SLO assessment.
<p><b>Item:</b> Orion 1.25 inch Telescope Accessory Kit  <b>Number:</b> 2  <b>Vendor:</b> Orion Telescope  <b>Unit price:</b> \$99.95  <b>Total Cost:</b> \$199.90  <b>Status*:</b> New</p> <p><b>Item:</b> 1.25" enhanced star diagonal  <b>Number:</b> 2  <b>Vendor:</b> Orion Telescope  <b>Unit price:</b> \$64.95  <b>Total Cost:</b> \$129.90  <b>Status:</b> New</p> <p><b>Item:</b> Orion Redbeam LED flashlight  <b>Number:</b> 10  <b>Vendor:</b> Orion Telescope  <b>Unit price:</b> \$21.95  <b>Total Cost:</b> \$219.50  <b>Status:</b> New</p>	<p>We are using 10 telescopes for the Observational Lab. However, only 8 telescopes have eyepiece cases. The users of the remaining 2 telescopes have to borrow and scrounge eyepieces from the other telescopes. This results in some students not being able to adequately address their lab experiments.</p> <p>The enhanced diagonals will be used on the two Celestron Schmidt-Cassegrain telescopes. Their present diagonals are inferior to these enhanced diagonals.</p> <p>These LED flashlights are necessary for the observing students to be able to write down their observations in the dark.</p>	<p>These items are for the student observational lab. They will enable the students to perform their observations more efficiently.</p>

Resources Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, briefly indicate how the requested resources will link to achieving department action steps based on SLO assessment.
<p><b>Item:</b> Edmund Scientific Spectrum Analysis Power Supplies  <b>Number:</b> 4  <b>Vendor:</b> Edmund Scientific  <b>Unit price:</b> \$159.95  <b>Total Cost:</b> \$639.80  <b>Status*:</b> New</p> <p><b>Item:</b> Spectrum tubes:  <b>Number:</b> 4  <b>Vendor:</b> Edmund Scientific  <b>Unit Price:</b>  hydrogen \$19.95  helium \$19.95  neon \$19.95  mercury \$49.95  <b>Total Cost:</b> \$109.80  <b>Status*:</b> New</p>	<p>These items will replace the dangerous, old power supply, plus give us a new set of spectrum tubes for astronomy lab. We presently have only one unshielded power supply, that can give a shock to the student, if accidentally touched. In addition, we are sorely lacking in spectrum tubes. The addition of safe, shielded power supplies and more tubes, allows the instructor to perform certain labs more safely.</p>	
Resources Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, briefly indicate how the requested resources will link to achieving department action steps based on SLO assessment.
<p><b>Item:</b> FLIR Infrared Thermal Imaging Camera  <b>Number:</b> 1  <b>Vendor:</b> FLIR  <b>Unit price:</b> \$2500  <b>Total Cost:</b> \$2500  <b>Status*:</b> New</p>	<p>We do not have any IR thermal imaging camera, to illustrate IR light. Light is a difficult chapter for the students, but the utilization of this FLIR camera would make IR far less mysterious. Students would be able to see how their skin temperature is affected by heat or cold, would be able to look at their seat imprint, etc.</p>	<p>The IR imaging camera would facilitate the teaching of a difficult subject for students, light. They would be able to see how IR is a dominant part of their lives. It will also be an interactive camera to use during our public observing nights and Astronomy Day activities.</p>

<b>Resources Requested</b>	<b>Expected Outcomes if Granted and Expected Impact if Not Granted</b>	<b>If applicable, briefly indicate how the requested resources will link to achieving department action steps based on SLO assessment.</b>
<b>Item:</b> L hires Lite spectrograph <b>Number:</b> 1 <b>Vendor:</b> Woodland Hills Camera <b>Unit price:</b> \$1,635.00 <b>Total Cost:</b> \$1,635.00 <b>Status*:</b> New	This spectrograph would allow the astronomy labs and classes to view the solar spectrum in very high resolution. In addition, the spectra of different spectrum tubes, as well as that of the full moon can be analyzed.	These items are for the student observational lab, as well as for public observing nights.
<b>Resources Requested</b>	<b>Expected Outcomes if Granted and Expected Impact if Not Granted</b>	<b>If applicable, briefly indicate how the requested resources will link to achieving department action steps based on SLO assessment.</b>
<b>Item:</b> Journey to Planet Earth <b>Number:</b> 1 <b>Vendor:</b> Screenscope, Inc <b>Unit price:</b> \$1,299.00 <b>Total Cost:</b> \$1,299.00 <b>Status*:</b> New	This 12 DVD set will be used in all of the Astronomy classes.	

\*Status = New, Upgrade, Replacement, Maintenance or Repair.



## 8. PROGRAM REVIEW PARTICIPANTS AND SIGNATURES

Date of this *Annual Update for Program Review and Planning* evaluation:

Please list the department's *Annual Update for Program Review and Planning* report team as appropriate:

Primary program contact person:

Phone and email address:

Full-time faculty:

Part-time faculty:

Administrators:

Classified staff:

Students:

<hr/> <i>Primary Program Contact Person's Signature</i>	<i>Date</i>
<hr/> <i>Full-time Faculty's Signature</i>	<i>Date</i>
<hr/> <i>Part-time Faculty's Signature</i> <b>(as appropriate)</b>	<i>Date</i>
<hr/> <i>Administrator's Signature</i> <b>(as appropriate)</b>	<i>Date</i>
<hr/> <i>Classified Staff Person's Signature</i> <b>(as appropriate)</b>	<i>Date</i>
<hr/> <i>Student's Signature</i> <b>(as appropriate)</b>	<i>Date</i>
<hr/> <i>Dean's Signature</i>	<i>Date</i>

**Annual Program Review**  
**RESOURCES FOR SUPPORTING DOCUMENTATION**

This section contains a listing of sources for data and key documents referred to in this *Annual Update* along with other resources. Contact information for relevant people is also included.

**Academic Senate**

<http://www.collegeofsanmateo.edu/academicsenate/>

Contact: [csmacademicsenate@smccd.edu](mailto:csmacademicsenate@smccd.edu)

Diana Bennett, President, [bennettd@smccd.edu](mailto:bennettd@smccd.edu), (650) 358-6769

**College Catalogs and College Class Schedules are archived online:**

<http://collegeofsanmateo.edu/schedule/archive.asp>

**Course Outlines are found at:**

<http://collegeofsanmateo.edu/articulation/outlines.asp>

**Committee on Instruction**

<http://www.smccd.net/accounts/csmcoi>

Contact: Laura Demsetz, Chair, [demsetz@smccd.edu](mailto:demsetz@smccd.edu), (650) 574-6617.

**Program Review Resources** (includes forms, data, and completed program reviews for both instructional and student services program review)

*Core Program and Student Success Indicators* (see links for "Quantitative Data for Instructional Programs")

*Distance Education Program Review Data*

*Glossary of Terms for Program Review*

*Listing of Programs Receiving Program Review Data from PRIE*

*Rotation Schedule for Instructional Program Review, 2008-2014*

[http://collegeofsanmateo.edu/prie/program\\_review/program\\_review.php](http://collegeofsanmateo.edu/prie/program_review/program_review.php)

**Office of Planning, Research, and Institutional Effectiveness (PRIE)**

<http://collegeofsanmateo.edu/prie/>

Contact: John Sewart, Dean, [sewart@smccd.edu](mailto:sewart@smccd.edu), (650) 574-6196

Contact: Milla McConnell-Tuite, Coordinator, [mccconnell@smccd.edu](mailto:mccconnell@smccd.edu), (650)574-6699

**At PRIE Website:**

*College Index, 2009-2010*, [http://collegeofsanmateo.edu/prie/institutional\\_documents.php](http://collegeofsanmateo.edu/prie/institutional_documents.php)

*Comprehensive Listing of Indicators and Measures, 2009-2010*

[http://collegeofsanmateo.edu/prie/institutional\\_documents.php](http://collegeofsanmateo.edu/prie/institutional_documents.php)

*Division/Department Workplans, Spring 2009 (only)*

[http://collegeofsanmateo.edu/prie/institutional\\_documents.php](http://collegeofsanmateo.edu/prie/institutional_documents.php)

*Educational Master Plan, 2008*, <http://collegeofsanmateo.edu/prie/emp.php>

*Institutional Priorities, 2008-2011*

[http://collegeofsanmateo.edu/prie/institutional\\_documents.php](http://collegeofsanmateo.edu/prie/institutional_documents.php)

**Student Learning Outcomes (SLOs) website:**

<http://www.collegeofsanmateo.edu/sloac/>

Contact: Frederick Gaines, Interim SLO Coordinator, [gainesf@smccd.edu](mailto:gainesf@smccd.edu), (650)574-6183