

# 1. Assessment Plan - Four Column



## PIE - Natural Sciences: Earth Sciences & Astronomy Unit

### Narrative Reporting Year

**2017-18**

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**External Conditions, Trends, or Impacts:** Current economic trend in Southern California are changing the student enrollment. Fewer students are enrolling in our courses, as more students are opting for online classes rather than evening classes. We are looking into changing our schedule of classes to accommodate this change.

Changes in English and math placement protocols starting in summer 2018 will change the number of students eligible to take some of our courses with pre-req and recommended pre-req. This may affect our enrollment. In conjunction with overall enrollment changes due to economic trends, it will be difficult to predict enrollment trends in advance. We will continue to be proactive about accommodating the needs of our students.

We continue to struggle to find qualified applicants for adjunct positions, especially on the astronomy side of the department. The small pool of people with the required degrees and the low unemployment rate among people with advanced degrees in physics and astronomy leads to a very small pool of qualified applicants that are interested in teaching in a part-time position.

The transfer requirements for Cal State schools has changed recently, to only require transfer students to take one lab course, either biological or physical science, rather than the old requirement that students take one of each type of lab. This may change our enrollment for our lab courses going forward.

**Internal Conditions, Trends, or Impacts :** Landers property development. The Landers property is currently being prepared for development. Once the structures and basic utilities (water, electricity, data) are established, we will investigate field trip planning and astronomical observing, both onsite and remotely. We are currently waiting for Facilities to finish the cleanup process before we can continue to move forward.

Geoscience lab technician - With the implementation of more demonstrations, activities, technology and field trips in our program, it is extremely difficult to have all needed tasks covered by one 50% technician for the entire department. The department has a strong need for either an additional 50% or one full time geoscience technician position.

Exploration center - We are very pleased to have access to wonderful facilities such as our planetarium, observatory and exploration center. The exploration center opened in 2014, but we have not had regular staff members who are responsible for the space. Currently, Earth Science department members and Larry Redinger are involved in student worker training, repairs, and upkeep. We need a regular, on-going budget established to support this amazing facility.

Finding classroom space for our classes is becoming increasingly difficult as the departments in our division expand their course offerings. To accommodate these changes, we are now holding a number of our classes in room 11-2115. Since we have not previously used this classroom, it currently does not have the equipment, demonstrations, or wall decorations that we would like to have available to help our students learn. The projection system is also greatly lacking, leaving us to use a portable projector on a

cart, rather than a built-in projector system.

Even though we were told that we would have more time to work on it, the PIE proces was once again greatly truncated, since we were not given access to the PIE forms until April. This left us with only six weeks to enter all of the required information, while also teaching full teaching loads, which once again gave us less time to work on this document than we would have liked.

**Notable Achievements for Theme A: To Advance Academic Excellence and Student Achievement:** Mike Hood has continued to be a member of the CAMPARE and Cal-Bridge program, giving our students access to these extremely beneficial programs. We have had two students selected for this program over the last two years: Christina Vides in 2017, and Chelsea Adelman in 2018.

Becca Walker recieved a grant to work on and aoffer a section of Geol29.

Geol9L and Geol30 approved.

Becca Walker is a co-PI on a National Science Foundation Geopaths grant entitled "Field based professional development for ESTEM Undergraduates." A collaborative field and career preparation program between Mt. SAC, College of the Atlantic, and University of San Francisco, the ESTEM program was implemented as a GEOL29 in the 2016-2017 academic year with 10 Mt. SAC student participants and is currently being implemented this year with 9 Mt. SAC student participants.

Becca Walker is a co-PI on a National Science Foundations IUSE grant entitled "Implementing 21st century geodesy learning through faculty development and expanded applications of data to societal issues." This project is developing undergraduate teaching materials using geodetic data and dissemination to faculty users.

Dave Mrofka developed a new course (GEOL30, Climate Change), and Dave Mrofka and Becca Walker developed a new course (GEOL9L, Environmental Geology Laboratory), which were subsequently approved by curriculum and will be offered starting in fall 2018.

**Notable Achievements for Theme B: To Support Student Access and Success:** Earth Science Resource room is open on a regular schedule, being staffed by student workers as well as faculty office hours to support students. We are hoping to also offer subject tutoring in resource center on regular schedule.

We held another successful Kepler event with 2 excellent astronomy scholarship winners and one excellent ESSRRG recipient.

Students, faculty, and staff were able to take part in a trip to Idaho to view the total solar eclipse in August, 2017. This trip also included visits to national parks and monuments, giving students the chance to learn about geology, anthropology, and biology, as well as astronomy.

Offered astrophotography course as an Astr99 class.

We held an observing session on campus for the solar eclipse that occurred in August 2017. This was attended by over 4000 people, a record for our public events.

The planetarium served over 1,600 Mt. SAC astronomy students and over 10,000 students from local school visiting on field trips, while offering 131 shows public shows for students and the community. The planetarium also generated over \$40,000.00 in revenue from offering outreach events for local schools, scout groups, and families.

**Notable Achievements for Theme C: Secure Human, Technological, & Financial Resources:** The Kepler Scholarship dinner event was again a huge success this year. In addition to raising funds for future scholarships, this event gave our students the chance to present their research to an interested audiences and also allowed us the opportunity to show benefactors the work we are doing in our department. We are now almost endowed to offer the student scholarship forever!

We have 3 new GeoScience adjunct and 1 new (returning from extended maternity leave) astronomy adjunct . However, as we have 2 retirements in GeoScience adjunct pool, we will continue to work to hire more adjunct faculty members.

We purchased a new weather station for use in our meteorology courses. This may also be useful for our Earth Science and even astronomy courses.

We purchased a new wave tank for use in our Earth Science courses.

We started to build Oceanography tool kits for adjunct faculty members to use. These will allow adjunct faculty members to assure that they have equipment and tools ready and available when they get to campus.

Purchased photography equipment for use by students working on astrophotography through an Astr99 course.

The department has been awarded Strong Workforce Program funding to develop a Geotechnician Certificate. The certificate has been granted approval for development by the LAOCRC Consortium, and new courses for the certificate have either been approved (GEOL9L) or are in the approval process (GEOL31, GEOL32.)

**Notable Achievements for Theme D: To Foster an Atmosphere of Cooperation and Collaboration:** We have increased collaboration with Cal Poly Pomona physics department and other local schools. 5 local colleges and universities (Cal Poly Pomona, Pomona college, Chaffey College, Citrus College, UC Riverside and Concordia University) were represented at Kepler 2018 event. Julie Bray Ali is involved with Women in Physics (CuWip) events (conferences as well as local meetings). Several faculty members have attended SCCUR 2017, including Julie who served as moderator. Tania Anders regularly attends the Inland Empire Geological Society monthly meetings as well as several other local events (e.g. SoCal chapter for Women Geoscientists). Mark Boryta attends the South Coast Geological Society monthly meetings. Mark has also been collaborating on research projects with professors at Cal Poly Pomona. Tania Anders continues to collaborate with UCLA researchers on outreach projects: Mt SAC students were once again able to join UCLA researchers on a one-day research cruise to Santa Monica Bay in 2017, a UCLA graduate student presented at Mt SAC, and Mt SAC was mentioned on an exhibit presented by UCLA at the Santa Monica Pier Aquarium.

Kepler event was successfully completed with collaboration with support from the president's office, college foundation office, hospitality management program, our department and division as major contributors, with help from marketing department, printing services, college bookstore, Mt SAC photo club, and other vendors, as well as the support from many managers, staff members and faculty members across campus.

Our department has started conversation with animation department and photo department to have collaboration on student projects. It would be great if photo department can teach astrophotography, with assistance from astronomy faculty and staff. We would also like to work with the animation program to create animations for use in planetarium and other digital media for new shows and department promotion. We will continue to approach the creative writing program to start on next in-house planetarium production.

Mark Boryta continues to find internships for students at JPL. He was asked by PI Rosaly Lopes (JPL scientist) to join a project studying astrobiology of Titan and beyond. This project was selected in Spring 2018 for NASA funding which means that Mt SAC students will be able to apply for internships as part of this project.

Tania Anders continues to foster and grow collaborations internationally. In 2017, she served on the steering committee for the research conference "Advances in Integrated Ocean Research towards Sustainable Development," which was organized by the Cluster of Excellence 'The Future Ocean' at Kiel University and sponsored by the German Academic Exchange Service (DAAD) through funding from the Federal Foreign Office and the Federal Ministry of Economic Cooperation and Development. The conference was held in Kiel, Germany.

Conferences and workshops attended by our faculty which were fully funded through outside sources and advanced the growth of our contact network and collaboration included: Center for Dark Energy Biosphere Investigations (C-DEBI) Community College Instructors Weekend Workshop held on Catalina Island (Dec. 2017; Anders and Boryta), Ocean Sciences Meeting, which also included two workshops - COAch and SAGE 2YC (Feb. 2018; Anders and Boryta). Geological Society of America annual meeting (October 2017, Walker and Mrofka; both gave oral presentations at the meeting and attended the GEO2YC Division meeting. Walker participated in the Accessible Field Geology of Western Washington field trip.); American Geophysical Union annual meeting (December 2017, Walker attended remotely and co-led short course, Using GPS data in undergraduate courses: from tectonic motions to water resources to climate change issues.)

Four of our geoscience faculty were selected for the SAGE 2YC project "Faculty as Agents of Change" (Supporting and Advancing Geoscience Education at Two-Year Colleges) - Anders, Boryta, Mrofka and Walker. Goal of SAGE 2YC is to help two-year college geoscience faculty implement high-impact, evidence-based instructional and co-curricular practices at their own institutions that will lead to improved STEM learning, broadened participation, and a more robust STEM workforce. Mrofka and Walker co-led one in-person workshop and one virtual workshop for the program during the 2017-2018 academic year and participated with other community college faculty in the SAGE 2YC science identify virtual discussion series and SAGE2YC virtual teaching circle.

As part of the SAGE2YC Faculty Agents of Change program, Dave Mrofka, Becca Walker, and Elizabeth Nagy-Shadman (Pasadena City College) convened a workshop in August 2017 for Southern California 2-year college geoscience faculty. A virtual follow-up workshop was convened in spring 2018. Full and part-time faculty from several area community colleges participated in this workshop.

In the context of the ESTEM program, Becca Walker teaches with faculty from College of the Atlantic and University of San Francisco. Various stakeholders in the environmental sector are also involved in the program, including personnel from the US Geological Survey, National Park Service, and Mammoth Community Water District. This year, biology faculty from the three institutions will also be involved in the program.

In the context of the GETSI (geodesy curriculum) project, Becca Walker collaborates with personnel at UNAVCO and Indiana University. She is currently working with Jonathan Harvey at Ft. Lewis College to develop teaching materials on using GPS, gravity, and traditional methods to measure water resources. She also worked with Beth Pratt-Sitaula (UNAVCO), Adam Booth (Portland State University), and SERC (Carleton College) to implement a webinar for the project "Addressing Landslide Hazards in Introductory Undergraduate Courses."

**Contributors to the Report:** Heather Jones

Mark Boryta  
 Julie Bray-Ali  
 Micol Christopher  
 Mike Hood  
 Hilary Lackey  
 David Mrofka  
 Tania Anders  
 Becca Walker

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
<b>ASTR AA degree</b> - Develop Astronomy Associates Degree <b>Status:</b> Active <b>Goal Year(s):</b> 2016-17, 2017-18 <b>Date Goal Entered (Optional):</b> 09/01/2016	<b>In Progress</b> - Create an Astronomy AA degree <b>Describe Plans &amp; Activities</b> <b>Supported:</b> Need to wait until Astr11 is full approved to start working on this. <b>Lead:</b> Micol Christopher	<b>Reporting Year:</b> 2017-18 <b>% Completed:</b> 0 Once Astr11 is approved, we can start working on AA Astronomy again. Pending approval of astr11. see analysis for Astr11 course. (05/18/2018)
<b>Geology Degrees</b> - Develop Geoscience Degrees to Meet Student	<b>In Progress</b> - CTE Geotechnical Careers - Develop a CTE for students	<b>Reporting Year:</b> 2017-18 <b>% Completed:</b> 25

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>	
<p>Needs</p> <p><b>Status:</b> Active</p> <p><b>Goal Year(s):</b> 2016-17, 2017-18</p> <p><b>Date Goal Entered (Optional):</b> 09/01/2016</p>	<p>wishing to pursue careers in geotechnical, engineering geology, environmental geology fields after two years of college work.</p> <p><b>Type of Request:</b> Student Services</p>	<p>A number of individuals have been identified as being good advisory members. Geology 9L, the first new course necessary for the CTE has been approved and will be offered in the Fall of 2018. Currently going through the approval process with the Chancellor's office after receiving permission from the LAOCRC Consortium. (05/18/2018)</p> <hr/> <p><b>Reporting Year:</b> 2016-17</p> <p><b>% Completed:</b> 25</p> <p>Strong Workforce Initiative funds were procured during the 2016-2017 school year to establish a Geotechnician Certificate program.</p> <p>Notice of Intent submitted, approved, and forwarded to the Chancellor's Office.</p> <p>Numerous stakeholders have been contacted to serve on the advisory board for the certificate program and to offer work experiences for students.</p> <p>Labor market analysis has been performed with extremely favorable results for geotechnician, environmental technician, and petroleum technician.</p> <p>New course for certificate program (GEOL9L--environmental geology lab) approved by department and submitted to C&amp;I and Ed Design.</p> <p>Revised AA degree reflecting new &amp; modified courses has been submitted to C&amp;I and Ed Design. (06/27/2017)</p>	<p>: We are progressing in establishing CTE Geotech program. We have a better scope of the project. We would need various support from the college to complete this project. As stated above, here are the support needed:</p> <ul style="list-style-type: none"> <li>- Release time for faculty co-directors. Development of a CTE program is above and beyond faculty curriculum development obligations as it involves new course development, interaction with stakeholders, organization and supervision of work experience courses, training and professional development to teach new courses and learn to use new equipment, etc. To best serve our students and expedite the offering of the geotech certificate program, faculty need dedicated time as part of their teaching load to develop and execute the program and assess the results.</li> <li>- Funding for equipment. The Geotechnical Methods (in development) and Environmental Geology Lab (submitted to C&amp;I, May 2017) will require additional analytical field and lab equipment</li> </ul>

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beyond the department's current inventory. Anecdotally, geospatial proficiency is a necessary skill for employment as a geotech/petroleum tech/environmental tech, suggesting that we will need to purchase ArcGIS software and computers.  
 - Additional funding for development of property in Landers, CA. The Landers property represents an excellent venue for field studies related to the Geotechnician Certificate Program as well as other STEM-discipline courses/programs at Mt. SAC and other institutions. Additional funds are needed to develop the property such that it is suitable for use. (06/29/2017)

**In Progress** - Develop Geoscience Associate Degree (AS-T).  
**Lead:** Dave Mrofka

**Reporting Year:** 2017-18  
**% Completed:** 0  
 AS-T in Geology is held up because, as a department, we have not participated in the CID numbering system At least, this is what I've been told; we will continue to follow up with Jamaika Fowler on this work. (05/18/2018)

Develop AA Natural Sciences with an emphasis in geology  
**Lead:** Dave Mrofka  
**Planning Unit Priority:** Low

**Revise AA in Liberal Arts with and Emphasis in Natural Science** - Revise the AA in Liberal Arts with and Emphasis in Earth Science to better meet the needs of our students.  
**Status:** Active  
**Goal Year(s):** 2017-18

**In Progress** - Get this degree revised and approved. Degree to include a new course for basic mapping skills, required or expected of students transferring to 4YCs as geology majors.  
**Planning Unit Priority:** High

**Reporting Year:** 2017-18  
**% Completed:** 75  
 All the documents have been submitted to EDC, but AA Emphasis in Natural Sciences is currently at stage 5, under review by the curriculum office. The curriculum liaison has commented that the degree needs to be "restructured" to offer clearer pathways for students, but is unsure how that

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<p><b>Date Goal Entered (Optional):</b> 06/27/2017</p>		<p>would look. The task force, given the responsibility for revising the degree, is happy with the degree as is, after submitting a number of new courses and withdrawing several others. Information is from <a href="https://webcms.mtsac.edu/admin/all_proposals.asp">https://webcms.mtsac.edu/admin/all_proposals.asp</a>, on</p>
<p><b>New Courses</b> - Create and teach new courses <b>Status:</b> Active <b>Goal Year(s):</b> 2016-17, 2017-18, 2018-19 <b>Date Goal Entered (Optional):</b> 09/01/2016</p>	<p><b>In Progress</b> - Wilderness safety and first aid training for staff involved in outdoor field trips. <b>Lead:</b> Mark Boryta <b>Planning Unit Priority:</b> High</p>	<p><b>Reporting Year:</b> 2017-18 <b>% Completed:</b> 0 Department did not choose to use Flex Day to pursue these trainings yet; postponed to 2018-19 (05/18/2018)</p> <hr/> <p><b>Reporting Year:</b> 2016-17 <b>% Completed:</b> 0 Mark will attend a 2-day Field Safety training course offered before the GSA Fall 2017 Meeting in Seattle (06/27/2017)</p>
	<p><b>In Progress</b> - Get Astr11 course approved and offered in the schedule. <b>Describe Plans &amp; Activities Supported:</b> Course proposed to be added to AA Natural Sciences degree -hopefully this will allow for Astr 11 to be approved. Next step will be securing CSU/UC transferability and then hopefully offer the course in Fall 2018 for first time. <b>Lead:</b> Micol Christopher. <b>Planning Unit Priority:</b> High</p>	<p><b>Reporting Year:</b> 2017-18 <b>% Completed:</b> 75 Astr 11 is at level 5, under review by EDC. This course can not be approved as a stand alone course, this course moving forward is pending approval on AA Emphasis in Natural Sciences , which is currently sitting at stage 5, under review by the curriculum office. Information is from <a href="https://webcms.mtsac.edu/admin/all_proposals.asp">https://webcms.mtsac.edu/admin/all_proposals.asp</a>, on</p>
	<p><b>In Progress</b> - Create Geol 20- Geological Field Skills- Create basic field mapping skills course. <b>Lead:</b> Dave Mrofka and Becca Walker</p>	<p><b>Reporting Year:</b> 2017-18 <b>% Completed:</b> 0 Planning the curriculum or content of this course has not begun; still important to the staff involved. (05/18/2018)</p>
	<p><b>In Progress</b> - Offer Geology 30 course to students. <b>Describe Plans &amp; Activities Supported:</b> This course is currently in stage 5 of curriculum development; need to finish the</p>	<p><b>Reporting Year:</b> 2017-18 <b>% Completed:</b> 100 Geol30, Global Climate Change has been approved and effective as of Summer 2018. We are offering one section of geol 30 in Fall 2018. We are planning to offer this course every full semester. (04/05/2018)</p>

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
	<p>process and get it on the course schedule.</p> <p><b>Lead:</b> Dave Mrofka</p> <p><b>In Progress</b> - Create Geol 31-Getotechnical Skills Class. This is a class necessary for the Geotechnician CTE</p> <p><b>Lead:</b> Dave Mrofka</p>	<p><b>Reporting Year:</b> 2017-18</p> <p><b>% Completed:</b> 25</p> <p>Curriculum and content ideas have begun to be identified for this course. Dependent on additional advisory committee interviews. (05/18/2018)</p>
	<p><b>In Progress</b> - Create Geol 32-Getotechnical Skills Class. This is a class necessary for the Geotechnician CTE</p> <p><b>Lead:</b> Dave Mrofka</p>	<p><b>Reporting Year:</b> 2017-18</p> <p><b>% Completed:</b> 0</p> <p>Entered into WebCMS in name only; planning for this course is on hold until advisory committee members come forward who are interested in supporting future interns/work experience. (05/18/2018)</p>
	<p><b>In Progress</b> - GEOL 1</p> <p><b>Lead:</b> David Mrofka</p>	
	<p><b>In Progress</b> - Create a 1-credit "Basic Science Skills" Class.</p> <p>This course would be designed to give students the tools they will need to be (more) successful when they later take a geoscience course.</p>	<p><b>Reporting Year:</b> 2017-18</p> <p><b>% Completed:</b> 0</p> <p>Have not made progress on this class idea. (05/18/2018)</p>
	<p><b>In Progress</b> - Create and offer a new oceanography course: Costal Oceanography</p> <p><b>Lead:</b> Tania Anders</p>	<p><b>Reporting Year:</b> 2017-18</p> <p><b>% Completed:</b> 25</p> <p>Locating a similar course course offered at a 4YC in CA at the introductory undergraduate level is in progress, so far without success. Articulation officer at Mt SAC and Associate Dean have joined in this discussion and work. General course outline has been developed. A similar course is offered at Orange Coast College. (05/18/2018)</p>
	<p>Create an online version (hybrid or fully online) of Geology 8.</p> <p><b>Lead:</b> Dave Mrofka</p> <p><b>Planning Unit Priority:</b> High</p> <p><b>What would success look like and how would you measure it?:</b> Create and teach an online version of GEOL8</p>	
	<p>Geol9L - Environmental geology lab</p>	<p><b>Reporting Year:</b> 2017-18</p>



Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	<p>to be approved and offered  <b>Lead:</b> Dave Mrofka  <b>Planning Unit Priority:</b> High</p>	<p><b>% Completed:</b> 100            Geol9L has been approved and is scheduled to be offered for the first time during the fall 2018 semester. We are planning to offer this course every full semesters. (05/20/2018)</p>
<p><b>Opportunities</b> - Provide students with opportunities that broaden their interests in Earth and Space Sciences  <b>Status:</b> Active  <b>Goal Year(s):</b> 2016-17, 2017-18  <b>Date Goal Entered (Optional):</b> 09/01/2016</p>	<p><b>In Progress</b> - TV Monitors in hallway of Bldg 60, 1st floor  <b>Describe Plans &amp; Activities Supported:</b> 3 TV monitors. Our efforts to advertise our offerings will be enhanced by the installation of 3 TV monitors in the halls on the first floor of building 60. We intend to present course offerings, open classes, upcoming events including field trips and lectures, and topics of general interest in our department such as including streaming of NASA programs. We expect more efficient enrollment and increased interest in our offerings.  <b>Lead:</b> Julie Bray-Ali  <b>One-Time Funding Requested (if applicable):</b> 12000  <b>Type of Request:</b> Facilities , Instructional Equipment  <b>Planning Unit Priority:</b> High  <b>What would success look like and how would you measure it?:</b> We will have 3 interactive monitors throughout the first floor of building 60 to introduce students to Earth Space science / opportunities, along with sharing student success stories.  <b>Documentation Attached?:</b> No</p>	<p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 0            Equipment budget request for this item was not approved. This item will continue to be on our goal list. (05/18/2018)</p> <hr/> <p><b>Reporting Year:</b> 2016-17  <b>% Completed:</b> 50            i have contacted Mikaela Klein and came up with the rough skedtch of the project (see below) however hte cost of the project was fairly high (approximately \$10,000). as a back up plan, we have discussed the project with IT department and planning to have 2 iMAC in a glass case to loop department information as well as general interest in science program. Dave Mrofka, Hilary Lackey and Julie Bray-Ali will be working on the plan and content development during summer 2017. Karen Long will assist us with the installation of the iMACs.            100% with the back up plan as of the end of Summer 2017. This item will stay on our PIE to hopefully have the actual monitors installed in the hallways in next few years.</p> <p>Tentative plan:            Building: 60            Rooms: hallway between 60-1515,1511&amp;1512 and outside of 60-1306            Scope:            -Purchase and installation of three (3) Flat Panel Displays (FPD is the generic technical term I use, not sure what Chris uses).            -Computers needed?            -Software needed?            -Run new power, data, and AV infrastructure to support FPDs (this is the construction part that needs to be included in the scope).            -Repaint as needed. (06/16/2017)</p> <p>: Evaluation of the project have taught us that having display panel is more expensive than we have originally expected. Our quick fix solution of using iMac in glass display cabinets will be implemented. . In near future, we would like to have the actual monitors installed in the hallways.s. (06/29/2017)</p>

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
	<p><b>In Progress</b> - Measure telescope vibrations and propose vibration dampening plan  <b>Lead:</b> Heather Jones  <b>Type of Request:</b> Equipment - replacement/upgrade</p> <p><b>Completed</b> - Create 3-4 new planetarium shows.  <b>Lead:</b> Heather Jones</p>	<p><b>Reporting Year:</b> 2016-17  <b>% Completed:</b> 25  Telescope video camera purchased in 2015 to help measure the vibrations turned out to be incompatible with any powered USB extender and is therefore incompatible with our systems. A replacement camera was purchased in 2016 and is currently being tested. During 2017 we also took some exoplanet data to test our equipment's ability to do this kind of research. During a consultation with Dennis M. Conti, an exoplanet research expert it was determined that the vibration effects will prevent exoplanet research. Vibrations need to be measured and a dampening plan developed. This will likely result in the deforking and reinstallation of the 16 inch telescope. (06/27/2017)</p> <p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 100  Five new shows were added to the planetarium show library during 2016-2018: Dark Matter Mystery, From Earth to the Universe, Seeing, Totality and Phantoms of the Universe. We are working on upgrading our system to Digistar 6 which will allow us to take advantage of dome streaming services and offer a larger variety of shows. (05/23/2018)</p> <hr/> <p><b>Reporting Year:</b> 2016-17  <b>% Completed:</b> 100  Four new shows were created during 2016-2017: Dark Matter Mystery, From Earth to the Universe, Seeing, Totality. (06/27/2017)</p>
	<p><b>In Progress</b> - Off Axis Guiding Camera for 16" Telescope  <b>Lead:</b> Heather Jones  <b>Type of Request:</b> Technology Equipment - new</p>	<p><b>Reporting Year:</b> 2016-17  <b>% Completed:</b> 25  Camera purchase for telescope guiding was discovered to have software issues over long distance USB extenders. The quick download of the camera overloads the system and caused the telescope firmware and computer to crash repeatedly. Manufacturers of the camera have been extremely slow to resolve the issue. The camera will only work when attached directly to a computer with a cable 5m or shorter. A new camera has been purchased and is currently being tested. (06/27/2017)</p>

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	<p><b>In Progress</b> - Planetarium lobby and grounds renovation</p>	<p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 0  The plants that died in the flowerbeds at the planetarium main entrances have been replaced by bushes. Heather Jones met with Patty Leon-Encalade from facilities in May 2018 to discuss possible renovations for the planetarium lobby, grounds, and restrooms. We are waiting to hear back from her. (05/23/2018)</p> <hr/> <p><b>Reporting Year:</b> 2016-17  <b>% Completed:</b> 0  Grounds was contacted and flowers were planted in the flower bed at the planetarium's main entrance. The flowers have since died. (06/27/2017)</p> <p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 0  The restrooms were evaluated by facilities and it was determined that due to building and ADA requirements, additional stalls could not be added to the existing restrooms. Any changes would require a physical expansion of the space. The planetarium's needs for additional space was mentioned in the 2018 Educational and Facilities Master Plan (chapter 10 page 71) but a solution was not specifically addressed. This is still an ongoing issue. (05/23/2018)</p> <hr/> <p><b>Reporting Year:</b> 2016-17  <b>% Completed:</b> 0  This is an ongoing need at the planetarium, requests for expansion of the planetarium and restrooms have been included in the masterplan proposal. (06/27/2017)</p>
	<p><b>In Progress</b> - Additional bathroom stalls added to planetarium restrooms</p> <p><b>Describe Plans &amp; Activities Supported:</b> Additional stalls are desperately needed to service the large groups that visit the planetarium. We frequently have groups up to 150 at a time.</p> <p><b>Lead:</b> Heather Jones</p>	<p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 0  Tables and chairs used during weekend planetarium events are currently stored in the foyer and lobby. The need for additional space was brought to facilities attention and was mentioned in the 2018 Master Plan but not specifically addressed. A solution is still needed. (05/23/2018)</p> <hr/> <p><b>Reporting Year:</b> 2016-17  <b>% Completed:</b> 0  This is an ongoing need at the planetarium, requests for</p>
	<p><b>In Progress</b> - Storage room needed adjacent to planetarium for frequently used tables and chairs.</p> <p><b>Describe Plans &amp; Activities Supported:</b> Tables and chairs and used during weekend planetarium events are currently stored in the foyer and lobby.</p> <p><b>Lead:</b> Heather Jones</p> <p><b>Type of Request:</b> Facilities</p>	

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>	
	<p><b>Completed</b> - Campus signs for the planetarium and telescope observatory</p> <p><b>Describe Plans &amp; Activities</b></p> <p><b>Supported:</b> The number one complaint received at the planetarium/observatory is that we are very difficult to find because of a lack of signs. Frequently visitors walk across campus to the telescope observatory on the top of building 60 thinking that is the planetarium because of its highly visible dome structure. Visitors are frequently frustrated and miss shows because they cannot find the planetarium. We want all visitors to have a good experience on Mt. SAC campus, and placing signs around and inside of campus would be a great help.</p> <p><b>Type of Request:</b> Facilities</p>	<p>expansion of the planetarium and restrooms have been included in the masterplan proposal. (06/27/2017)</p> <p><b>Reporting Year:</b> 2016-17</p> <p><b>% Completed:</b> 100</p> <p>Signs installed in late June 2017. Thank you! (06/27/2017)</p>	<p>: Visitors are now much better able to find their way to the correct part of campus to find the observatory and planetarium. (06/27/2017)</p>
	<p><b>In Progress</b> - Maintenance on both planetarium projection systems</p> <p><b>Describe Plans &amp; Activities</b></p> <p><b>Supported:</b> Our planetarium uses two planetarium projection systems. Both need to be maintained on a regular basis. We maintain our Digistar projector with an annual maintenance agreement with Evans and Sutherland (Digistar's manufacturer) to support the software and hardware of the system. The Zeiss Skymaster ZKP 4 requires biannual maintenance from a certified technician which cost ~\$15,000 per visit (subject to exchange rates).</p>	<p><b>Reporting Year:</b> 2017-18</p> <p><b>% Completed:</b> 25</p> <p>We have maintained our annual maintenance agreement with Evans and Sutherland and use it frequently to solve hardware and software issues with the planetarium system when it arises. The Zeiss projector is due for another maintenance visit. The main polar rotation gears need to be looked at, as it is squeaking quite badly. (05/23/2018)</p> <p><b>Reporting Year:</b> 2016-17</p> <p><b>% Completed:</b> 25</p> <p>Cost of maintenance has been increased to \$5,000.00 annually. Zeiss maintenance is being scheduled for early August to coincide with Digistar 6 upgrade. (06/27/2017)</p>	

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
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**Lead:** Heather Jones  
**Type of Request:** Instructional Equipment, Non-Instructional Equipment  
**Planning Unit Priority:** High  
**In Progress -** Continue to offer students opportunities to become involved in research in the geosciences. We currently have two students doing research through the Redinger grant, others working with Bob Nelson on a project, and access to the CAMPARE and CalBridge projects through Mike Hood's involvement in both of those grants.  
**Describe Plans & Activities**  
**Supported:** Support from the college to continue this important work.

The ability for faculty to be paid to work on research experience courses (99 classes).

**Reporting Year:** 2017-18  
**% Completed:** 100  
 Dave Mrofka worked with Adam Fuentes on ESSRRG. Have completed his research, successfully completed a poster presentation and Adam has since transferred to 4 year institution (UC-Davis). Heather Jones, Jessica Draper and Julie Bray-Ali are continuing to work with Chelsea Adelman on ESSRRG - Education research: Learning gain through demonstrations and activities. Chelsea collected a substantial amount of data and presented at both SCCUR in November 2017 and at the Kepler Scholarship event in 2018. We are still withking with her to add more activities in the exploration center. Christina VIdes participated in CAMPARE 2017. Her research was presented at numerous conferences including SCCUR 2017 and AAS 2018. Chelsea Adelman will participate in CAMPARE during Summer 2018. Nikki Cielo is working on SIRI JPL student intern program on Graphics design and technical visualization project during spring 2018. During fall 2017 semester, we offered Astrophotography course as Astr99 for the first time. We had 3 students enrolled in the course and was a great success! Winter 2018 saw the initiation of Morgan Palmer and Robert Zou as ASTR 99 students working with Bob Nelson. Spring 2018, students Morgan Palmer and Danny Vencek-Martinez started an independent research project correlating sedimentology and stratigraphy of the coast with core samples that Hilary Lackey is procuring from CRC oil consulting firm.

Note that we are marking this as 100% complete, though this work will continue on in the future. (05/18/2018)

**Full Funding Requested -** Infrared Camera and Video Montior  
**Describe Plans & Activities**  
**Supported:** Create a system to be

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
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used in a variety of classes and for the general public where students/public investigate the greenhouse effect and the effect of different materials on the transmission of IR and visible light wavelengths  
**One-Time Funding Requested (if applicable):** 4000  
**Type of Request:** Instructional Equipment  
**Planning Unit Priority:** Medium

**Student success** - Apply outcomes research to teaching methods and curricular planning in an effort to help our students achieve academic success.  
**Status:** Active  
**Goal Year(s):** 2016-17, 2017-18  
**Date Goal Entered (Optional):** 09/01/2016

**In Progress** - Purchase and Install a Modern Weather Station  
**Describe Plans & Activities Supported:** Purchase a modern weather station.  
**Lead:** Craig Webb  
**One-Time Funding Requested (if applicable):** 5500  
**Type of Request:** Equipment - new

**Reporting Year:** 2017-18  
**% Completed:** 100  
 Weather station equipment was purchased during spring 2018 semester, though it has not been delivered yet. We are planning to install the weather station and start using the unit in meteorology lecture and lab courses starting fall 2018. We need add new goal to develop activities using the new weather station for 2018-2019 PIE (05/18/2018)

**Reporting Year:** 2016-17  
**% Completed:** 25  
 Not yet purchased. We have a plan for a new weather station, however, funding is needed to complete this project. (06/25/2017)

**In Progress** - Actively recruit and hire student tutors for our General Education courses. We serve almost 2000 students per year in ASTR 5, GEOL 8, METO 3, and OCEA 10. There is tutoring on campus for Math and English, but tutoring resources have not been made available in our area.  
 For 2017-2018 academic year, we are submitting SI request for Astr5, Astr8, Ocea10 and Geol 1.  
**Describe Plans & Activities Supported:** Funding to pay student

**Reporting Year:** 2016-17  
**% Completed:** 50  
 Currently we have regular weekly tutoring sessions fro Astronomy 8. we have looked into adding Oceanography tutoring sessions, but we were not able to establish a schedule. We need to start Oceanography tutoring session from first week of the semester in Fall 2017. (06/25/2017)

: We need to establish a schedule from the beginning of the semester. Tutoring sessions are more likely to become part of the student's regular weekly schedule if started early in the semester. We will establish both astronomy and oceanography tutoring session schedules by the end of week 1 during fall 2017. (06/25/2017)

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	<p>tutors.</p> <p>Support from the tutoring center or STEM center.</p> <p><b>Lead:</b> Faculty, STEM-center</p> <p><b>Type of Request:</b> Human Resources, Student Services</p> <p><b>In Progress</b> - Lab space that can be used by all Earth Science disciplines</p> <p><b>Lead:</b> Mark Boryta</p> <p><b>Planning Unit Priority:</b> High</p>	<p><b>Reporting Year:</b> 2016-17</p> <p><b>% Completed:</b> 0</p> <p>There have been no opportunities for us to increase lab space or offerings. (06/25/2017)</p>	
	<p><b>In Progress</b> - Equity in learning in all intro astronomy courses</p> <p><b>Describe Plans &amp; Activities</b></p> <p><b>Supported:</b> The ability for faculty to be paid to work on research experience courses (99 classes).</p> <p><b>Lead:</b> Mike Hood and Julie Bray-Ali</p> <p><b>Planning Unit Priority:</b> High</p>	<p><b>Reporting Year:</b> 2017-18</p> <p><b>% Completed:</b> 75</p> <p>We are continuing to implement the 2 activities developed. We are no longer collecting pre-test and post data as we already have ample amount of data to analyze before moving forward to the next step. (05/18/2018)</p>	
		<p><b>Reporting Year:</b> 2016-17</p> <p><b>% Completed:</b> 100</p> <p>We received funding through the FIG projects to assess student learning in our astronomy courses. Pre- and post-tests were given to astronomy students in every section. The FIG funding allowed us to hire a student to help score tests and analyze the score results. We used this data to find concepts that students were struggling to understand, and designed activities to help students learn this material. We presented one full year worth of our data to other faculty members inside and outside of our department. (05/24/2017)</p>	<p>: We were able to show how the activities we created helped improve student learning, and continue to use this assessment data to pinpoint areas where we can improve student learning. We also used the data we collected to as a part of our SLO assessment for the year, which helped inform the changes we made to Astr5 in the process of our 4-year course review. (05/24/2017)</p>
	<p><b>On Hold/Discontinued</b> - Earth Science classrooms</p> <p><b>Lead:</b> Tania Anders</p> <p><b>One-Time Funding Requested (if applicable):</b> 3200</p>	<p><b>Reporting Year:</b> 2016-17</p> <p><b>% Completed:</b> 0</p> <p>This plan was not completed in the 2016-17 school year. This plan has been rewritten as a new plan for the coming year. (06/27/2017)</p>	
	<p><b>In Progress</b> - Student computer carts updates</p> <p><b>Describe Plans &amp; Activities</b></p> <p><b>Supported:</b> New software. We</p>	<p><b>Reporting Year:</b> 2017-18</p> <p><b>% Completed:</b> 75</p> <p>Some updates on our 3 computer carts were done. All 3 computer carts are now equipped with less than 4 years old</p>	

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	<p>recently acquired vernier equipment. We would like all of our instructor systems and student computer charts have vernier software (LoggerPro3) . We will survey what other additional softwares are needed and will update all our computer system. 2 of the laptop carts were updated with new computers in fall 2016 and one is from spring 2015. We will be requesting new system for the older set in 2018-2019 PIE.</p> <p><b>Lead:</b> Julie Bray-Ali will</p> <p><b>One-Time Funding Requested (if applicable):</b> 500</p> <p><b>Type of Request:</b> Technology Software Systems - new</p> <p><b>Planning Unit Priority:</b> High</p> <p><b>What would success look like and how would you measure it?:</b> Softwares purchased and installed.</p> <p><b>Documentation Attached?:</b> Yes</p> <p><b>In Progress -</b> 2017-2018 academic year, we need replacement computer system for 60-1515, 60-1306 and building 61 -Exploration center . During the summer 2017, we will assess all the systems for technology update needs. As for the student laptop carts, 2 of the laptop carts were updated with new computers in fall 2016 and one is from spring 2015. We will be requesting new system for the older set in 2018-2019 PIE.</p> <p><b>Describe Plans &amp; Activities</b></p> <p><b>Supported:</b> New classroom systems</p> <p><b>Lead:</b> Julie Bray-Ali</p> <p><b>One-Time Funding Requested (if</b></p>	<p>computers. 3 of our carts have 18, 18 and 14 machines. We need each cart to have 20 computers as more of our in-class activities require individual computer use. (05/18/2018)</p> <hr/> <p><b>Reporting Year:</b> 2016-17  <b>% Completed:</b> 100</p> <p>Here's a list of classroom computers that were updated for 2016/2017 academic year. 11-2119, 11-2209, 11-2310, 11-2324, 11-2123 Astronomy Laptop Cart, 60-1511, 60-1512, 60 Planetarium - iMAC students desktops. During summer 2017, following IT project will be completed: 60-1402 - Adjunct printer replacement, 60-1104 - ES department printer replacement, 60 Planetarium - student observatory laptops, 60 Wifi Access Points upgrade We will be 100% complete with this task as of the end of Summer 2017. But we will start assessing the conditions of the other systems to see if we need updates and replacement during 2017-2018 academic year. As of now, we know we need 60-1515 and 60-1306 . As we start to use more vernier software as part of our lab activities, we need software installed on faculty computers and student laptops. (06/14/2017)</p> <p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 75</p> <p>Some updates on our 3 computer carts were done. All 3 computer carts are now equipped with less than 4 years old computers. 3 of our carts have 18, 18 and 14 machines. We need each cart to have 20 computers as more of our in-class activities require individual computer use. (05/18/2018)</p> <p>: With the updated student laptops and instructor computers, we are able take advantage of the latest technology in our classroom for more effective learning. (06/14/2017)</p>



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**applicable):** 3600  
**Type of Request:** Technology Equipment - replacement/upgrade, Technology Software Systems - upgrade  
**Planning Unit Priority:** High  
**What would success look like and how would you measure it?:** New systems to be installed  
**Documentation Attached?:** No  
**In Progress -** Purchase and install new softwares in our classroom and staff computers. We k now we need vernier software (Logger pro3). Logger pro site licence (\$250) and 10 student CD - to be used as faculty resource in each classroom. We will survey the department for additional software to be included in the update

**Describe Plans & Activities**  
**Supported:** site licence of Logger pro and other software  
**Lead:** Julie Bray-Ali  
**One-Time Funding Requested (if applicable):** 1000  
**Type of Request:** Technology Software Systems - new  
**Planning Unit Priority:** High  
**What would success look like and how would you measure it?:** Software to be installed in all of our computers.  
**Documentation Attached?:** No

Improve usability of Oceanography Classrooms (11-2209 and 60-1511). This includes general clean up and decluttering of the rooms, as well as purchasing materials to enhance

**Reporting Year:** 2017-18  
**% Completed:** 0  
 This has not been done. We are waiting for geoscience faculty members to let us know when we should purchase the software. Geoscience faculty members are using Logger Pro to establish set activities to be used by all of our bread and butter courses. Software purchase is part of that effort and we will continue to work on this task during the 2018-2019 academic year. (05/18/2018)

**Reporting Year:** 2017-18  
**% Completed:** 50  
 Clean-up of 60-1511 has begun and oceanography faculty have met to discuss general use and organization of cabinet space. A request to add locks to cabinets was submitted on

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	<p>student learning.</p> <p><b>Describe Plans &amp; Activities</b></p> <p><b>Supported:</b> This includes a marine fossil collection, sedimentary structures, sediment samples, glass beakers and other general equipment required for lab activities. Estimated cost: \$3,000.</p> <p><b>Lead:</b> Tania Anders</p> <p><b>One-Time Funding Requested (if applicable):</b> 1000</p> <p><b>Planning Unit Priority:</b> Low</p> <p><b>In Progress -</b> Create "Instructional Toolkit Boxes" for adjunct faculty members.</p> <p>To ensure quality instruction by all faculty for Oceanography, full-time Oceanography faculty plan on putting together "instructional tool-kit boxes" for all adjunct faculty. These boxes will include material for hands-on activities for lecture courses. Adjunct faculty members often only come to our campus to teach one or two classes. It is instrumental for these faculty members to know that they have a space where they can store their own material that they can count on being there and ready for use.</p> <p><b>Describe Plans &amp; Activities</b></p> <p><b>Supported:</b> Have locks installed on all cabinets in 60-1511 to allow adjunct faculty to have somewhere to store their materials. Personal spaces as well as well maintained joint equipment, will encourage adjunct faculty to do more hands on activities and to feel welcomed at Mt. SAC.</p>	<p>March 14th 2018. Once locks are installed material of varying values can be added for safe storage. Basic material such as glass beakers and plastic cylinders have been purchased and added to cabinets, although it seems that a number of glass beakers have disappeared from the room. More need to be ordered if material does not show up again. (05/18/2018)</p> <p><b>Reporting Year:</b> 2017-18</p> <p><b>% Completed:</b> 25</p> <p>The Oceanography faculty have met and discussed which materials would be beneficial to have to compliment the lecture courses. Order requests were submitted to lab technician in early April, 2018, and some materials arrived. Once material arrives, boxes will be put together to be completed by the start of Fall 2018. (05/18/2018)</p>

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Purchase and outfit toolkit boxes with the necessary materials for each adjunct faculty member. - \$3000

Funding for adjunct faculty to be paid to attend a flex-day activity for introduction of the use of the boxes. - \$500

**Lead:** Tania Anders

**One-Time Funding Requested (if applicable):** 3500

**Type of Request:** Equipment - new, Facilities

**Full Funding Requested -** Student worker budget to pay student to work on data entry and analysis.

### **Describe Plans & Activities**

**Supported:** Intro astronomy student learning research is still continuing. Results have already lead to improvements in our teaching in introductory astronomy courses. We will use the data we have already collected to inform our work on developing additional in-class activities to resolve difficult topics.

**Lead:** Mike Hood and Julie Bray-Ali

**One-Time Funding Requested (if applicable):** 300

**Type of Request:** Staffing, Research Support

**Planning Unit Priority:** Medium

### **What would success look like and how would you measure it?:**

Continue to work on analysis of the data we collected. This data consists of pre- and post test in all intro astronomy courses to assess most

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	<p>difficult topics in intro astronomy courses and develop additional activities / demos.</p> <p>Upgrade equipment, demos, and posters in room 11-2115 to give students in that classroom the same learning opportunities as students in other classrooms.</p> <p><b>Planning Unit Priority:</b> High</p>	
<p><b>Cutting Edge Technology to Support Student Learning</b> - We will continue to strive to give our students access to cutting edge technology to allow us to help increase student success.</p> <p><b>Status:</b> Active</p> <p><b>Goal Year(s):</b> 2017-18</p> <p><b>Date Goal Entered (Optional):</b> 06/27/2017</p>	<p><b>In Progress</b> - Ten replacement iPads and charging station. \$7500</p> <p><b>Describe Plans &amp; Activities Supported:</b> Our department has 8 ipads for student use in the classroom and on the field. They are now almost 5 years old and no longer updatable with new software and no longer supported by the vendor. We would like to request replacements. 10 ipads. (\$650 per unit with apple care = \$6500 plus docking station / charging station)</p> <p><b>Lead:</b> Julie Bray-Ali</p> <p><b>One-Time Funding Requested (if applicable):</b> 7500</p> <p><b>Type of Request:</b> Instructional Equipment, IT Support</p> <p><b>Planning Unit Priority:</b> Medium</p> <p><b>What would success look like and how would you measure it?:</b> iPads will be used by our students in the classroom and in the field to learn the subject, record their learning and discoveries and share. Implementation of this tool will increase the student learning. Success will be measured by acquiring the ipads..</p>	<p><b>Reporting Year:</b> 2017-18</p> <p><b>% Completed:</b> 0</p> <p>These iPads have not been purchased. We will continue to request these items. (05/18/2018)</p>
	<p><b>In Progress</b> - Maintain chemical and</p>	<p><b>Reporting Year:</b> 2017-18</p>

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	<p>physical sampling equipment for use in classes and for student research. The Department has purchased a set of Vernier geochemical sampling devices for use in oceanography and geology labs. We have also purchased sedimentary coring devices. This equipment requires proper care and storage - for instance, some probes need to sit in a wet chemical solution during storage. Sediment cores need to be stored at proper temperature and humidity levels.</p> <p><b>Describe Plans &amp; Activities</b>  <b>Supported:</b> It is important that the space, budget and employee hours (those of Mark Koestel, our technician, or student hourly assistants) be available for upkeep.  <b>Lead:</b> Tania Anders, geology faculty</p> <p><b>In Progress -</b> Replace Aging Digital Projectors in the Planetarium</p> <p><b>Describe Plans &amp; Activities</b>  <b>Supported:</b> Replace Aging Digital Planetarium Projectors - The planetarium's digital projectors are heavily used and have not kept up well with current technology. The current 2K resolution limitation causes some pixelation, especially when looking at planet orbits, and the stars do not look like stars but instead fuzzy dots. Upgrading to a 4K projection system will significantly increase the resolution with crisper point like stars and smoother image renders. Installation would close the planetarium for one week and would</p>	<p><b>% Completed:</b> 25  Lab technician has been instructed to regularly (at least once a month) check probes that require storage in solution, as well as to maintain other probes. Faculty are not monitoring if lab technician is completing this task regularly but are trusting that task is being done. Some Lab Quest 2 units are not functioning properly. Lab technician should follow up with Vernier. We currently have no storage space for sediment cores (requires refrigeration). (05/18/2018)</p> <p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 25  The planetarium saves some of it's revenue each year in anticipation of this cost. As of May 23, 2018 we have saved up \$100,000.00 to put towards this cost. (05/23/2018)</p> <hr/> <p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 0  This will be the most expensive upgrade to the planetarium since it reopened. We are saving planetarium revenue to help with the cost. (05/18/2018)</p>

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need to be done by a professional. This is a significant and expensive upgrade.

**Lead:** Heather Jones

**Type of Request:** Facilities , Instructional Equipment, Non-Instructional Equipment, IT Support

**Planning Unit Priority:** High

**Full Funding Requested - 9** additional laptops to equip all of our carts to the intended capacity of 20.

**Describe Plans & Activities**

**Supported:** Currently, our three laptop carts have 18, 18 & 15 computers. We need to increase each of these laptop sets to have 20 computers each, so that we have enough computers for each of our students to have their own computer to use in lab. Completion of this goal will equip each computer carts to have 20 laptops to accommodate the classroom and lab rooms better. We have 9 classrooms and share 3 computer carts. We will in the near future increase in the number of carts, but for now we will be mostly supported by 3 sets of carts of computers.

**Lead:** Julie Bray-Ali

**One-Time Funding Requested (if applicable):** 10800

**Type of Request:** Instructional Equipment, IT Support

**Planning Unit Priority:** High

**What would success look like and how would you measure it?:** Success will be measured by acquiring and using the new laptops.

**Full Funding Requested - 20 laptop**

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computers to replace the units in our oldest laptop cart.

**Describe Plans & Activities**

**Supported:** One of the carts full of laptop computers from Spring 2015 needs to be replaced. The computers are now old enough that they cannot handle the software needed for some of our astronomy labs.

**Lead:** Julie Bray-Ali

**One-Time Funding Requested (if applicable):** 21600

**Type of Request:** Instructional Equipment, IT Support

**Planning Unit Priority:** High

**What would success look like and how would you measure it?:** Success will be measured by acquiring the new laptops to replace our oldest set of computers.

Maintenance to classroom microscopes and petrographic scopes

**Describe Plans & Activities**

**Supported:** Maintenance to classroom microscopes and petrographic scopes

**One-Time Funding Requested (if applicable):** 1000

**Type of Request:** Instructional Equipment, Instructional Supplies

**Planning Unit Priority:** High

**Full Funding Requested -** Logger Pro and other software

**Describe Plans & Activities**

**Supported:** Purchase and install new software on our classroom and staff computers. We know we need vernier software (Logger pro3).

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Logger pro site licence (\$250) and 10 student CD's intended to be used as faculty resource in each classroom. We will survey the department for additional software to be included in the update

**Lead:** Julie Bray-Ali

**One-Time Funding Requested (if applicable):** 250

**Planning Unit Priority:** Medium

**What would success look like and how would you measure it?:** Logger pro is a software to be used with the handheld data collecting units that we have. Software will allow students to further analyze the data collected. Success will be measured by acquiring and utilizing the software.

**Full Funding Requested -** Classroom to be equipped with BrightLink system.

### **Describe Plans & Activities**

**Supported:** Campus is starting in implement Bright ink system (similar to SmartBoard) in newer classrooms / building. We would like to start by equipping one of our classrooms to with BrightLink system to be used in conjunction with iPads to have more effective in-class small group activities and discussions. Our immediate goal in summer 2018 is to research infrastructure change needs and asses which classroom would be appropriate for this system to be installed. We imagine this to be the first installation of this college standard system in our division to study the effectiveness of this device. Julie Bray Ali will work with



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IT staff and interview other instructors, programs, the IT department and presentation services to analyze the benefits and challenges of this system. Once the system is installed, we envision this system to be used by ESA as well as other department faculty members to utilize this new cutting edge resource. System is about \$3,000. Facility updates needs to be completed to install smartboard system.

**One-Time Funding Requested (if applicable):** 3000

**Type of Request:** Facilities , Instructional Equipment, IT Support

**Planning Unit Priority:** Medium

**What would success look like and how would you measure it?:** Bright Link will allow greater student participation in the classroom and recording of the participation. In conjunction with the use of classroom iPads, we can transform our classroom to be even more technologically advanced in order to take advantage of online resources and other online tools. Implementation of the system will improve student participation and learning. Success will be measured by acquiring the Brightlink system in one of our classrooms, after which we will continue to measure improvements in student learning due to the use of this system.

**Full Funding Requested -**  
Augmented reality sandbox

**Describe Plans & Activities**

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**Supported:** 1. In alignment with External Condition 1 (see relevant section in this PIE document), our department may face a higher need for offering some of our lectures online. An augmented reality (AR) sandbox offers the opportunity to produce high quality visual instructional material for our students. 2. Many of our students struggle with the transfer of 3 dimensional information into a 2 dimensional view.

"Using an AR sandbox allows users to create topography models by shaping real sand, which is then augmented in real time by an elevation color map, topographic contour lines, and simulated water. The system teaches geographic, geologic, and hydrologic concepts such as how to read a topography map, the meaning of contour lines, watersheds, catchment areas, levees, etc." (UC Davis).

A majority of our Earth Science courses include these concepts in our Student Learning Outcomes/Course Measurable Objectives, so an AR sandbox will help us teach these concepts that so many of our students struggle with.3. The AR sandbox can be used for community outreach events.

**Lead:** Tania Anders

**One-Time Funding Requested (if applicable):** 10000

**Type of Request:** Instructional

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Equipment

**Planning Unit Priority:** Low

**What would success look like and how would you measure it?:**

Purchase and install the augmented reality sandbox. Develop activities to be used with the equipment for use both in the classroom and for outreach events.

**Full Funding Requested** - Meteorite display for the planetarium. Request includes design of the display as well as purchase of the samples for the display.

**Describe Plans & Activities**

**Supported:** We would like to hire Dustin Dickens, a noted and well-qualified meteorite specialist to design and obtain samples for a meteorite display. This display will highlight the concepts behind planet differentiation and accretion theory and show how this theory explains the different types of meteorites found. This display will also honor the late Ron Hartman, a meteorite expert, who served as Mt. SAC's Planetarium Director for over 40 years by featuring some of his original collection.

**Lead:** Heather Jones

**One-Time Funding Requested (if applicable):** 15040

**Type of Request:** Staffing, Instructional Equipment

**Planning Unit Priority:** Low

**What would success look like and how would you measure it?:** Use of the display for astronomy and geology classes to promote student

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	<p>learning, as well as interest from Mt. SAC visitors ARC-GIS Facility</p> <p><b>Describe Plans &amp; Activities</b> <b>Supported:</b> Update computing facilities to include ARC-GIS capabilities and other systems for use with our technical equipment. <b>Lead:</b> Tania Anders, Dave Mrofka <b>Planning Unit Priority:</b> Low</p> <hr/> <p><b>Full Funding Requested</b> - Projector installed into the ceiling of 11-2115 <b>Describe Plans &amp; Activities</b> <b>Supported:</b> Currently, the only projector in this classroom is placed on a cart in the middle of the room. This leads to cords stretched across the floor, leading to a clearly undesirable situation. <b>Lead:</b> Julie Bray-Ali and Mike Hood <b>One-Time Funding Requested (if applicable):</b> 6000 <b>Type of Request:</b> Instructional Equipment, IT Support <b>Planning Unit Priority:</b> High</p>	
<p><b>Cutting-edge science</b> - Update and augment our Earth Science program to reflect cutting edge science and pedagogy. Special emphasis placed on oceanography and field studies. <b>Status:</b> Active <b>Goal Year(s):</b> 2016-17, 2017-18 <b>Date Goal Entered (Optional):</b> 09/01/2016</p>	<p><b>In Progress</b> - Wave Tank for 60-1515 <b>Lead:</b> David Mrofka <b>One-Time Funding Requested (if applicable):</b> 12000 <b>Planning Unit Priority:</b> High</p>	<p><b>Reporting Year:</b> 2017-18 <b>% Completed:</b> 100 The new, smaller, wave tank has been installed in 60-1515. It is there to be used by all of our Earth Science lab sections and both field geology courses. It has helped students understand the physical characteristics of ocean waves, how they change as energy increases or decreases, how they change as water level changes and the relationship between waves and sedimentary structures. All of these are related to measurable objectives for Geol8L, Geol24 &amp; Geol25. (05/18/2018)</p>
	<p><b>In Progress</b> - Instructors will have access to subject-specific professional development</p>	

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opportunities that will assist in designing student research and inquiry-based activities (particular focus on improving the oceanography laboratory materials and curriculum)  
**Lead:** Faculty, Deans,  
**One-Time Funding Requested (if applicable):** 5000  
**Planning Unit Priority:** High  
**In Progress -** Classroom presentation systems  
**Lead:** Julie Bray-Ali will  
**Planning Unit Priority:** High

**Reporting Year:** 2016-17  
**% Completed:** 100  
 Here's a list of classroom computers that were updated for 2016/2017 academic year. 11-2119, 11-2209, 11-2310, 11-2324, 11-2123 Astronomy Laptop Cart, 60-1511, 60-1512, 60 Planetarium - iMAC students desktops. During summer 2017, following IT project will be completed: 60-1402 - Adjunct printer replacement, 60-1104 - ES department printer replacement, 60 Planetarium - student observatory laptops, 60 Wifi Access Points upgrade We will be 100% complete with this task as of the end of Summer 2017. But we will start assessing the conditions of the other systems to see if we need updates and replacement during 2017-2018 academic year. As of now, we know we need 60-1515 and 60-1306 . As we start to use more vernier software as part of our lab activities, we need software installed on faculty computers and student laptops. (06/14/2017)

: New classroom systems and student laptops allows us to take advantage of the technology in learning. (06/14/2017)

**Full Funding Requested -** Wave tank for 60-1515  
**Describe Plans & Activities**  
**Supported:** Install a wave tank in 60-1515 that is identical to the one in 1511  
**Lead:** Dave Mrofka  
**One-Time Funding Requested (if applicable):** 14000  
**Type of Request:** Instructional Equipment  
**Planning Unit Priority:** Low

**Full Funding Requested -** Turbidity

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current demonstrator  
**Describe Plans & Activities**  
**Supported:** Purchase and install a turbidity current demonstrator into room 60-1515  
**Lead:** Dave Mrofka  
**One-Time Funding Requested (if applicable):** 3000  
**Type of Request:** Instructional Equipment  
**Planning Unit Priority:** Low

<p><b>Community outreach</b> - Continue to reach out to the community to encourage their participation in activities related to the Randall Planetarium, the Observatory, and other events on or off campus.  <b>Status:</b> Active  <b>Goal Year(s):</b> 2016-17, 2017-18  <b>Date Goal Entered (Optional):</b> 09/01/2016</p>	<p><b>In Progress</b> - Work with faculty at La Fetra Elementary School in Glendora, CA in implementing the school's Science Night activities and provide assistance in developing their earth science curriculum.  <b>Lead:</b> Craig Webb  <b>Type of Request:</b> Equipment - replacement/upgrade  <b>Documentation Attached?:</b> No</p>	<p><b>Reporting Year:</b> 2016-17  <b>% Completed:</b> 100  Craig Webb helped organize the Science Night at La Fetra elementary school in Glendora, CA. He continued to be the defacto "geologist" to assist faculty at the school with the earth science curriculum. This is an ongoing plan for future school years as well. (06/27/2017)</p>
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**In Progress** - Advertising events with more than just social media and classroom announcements. Visitors to the planetarium/observatory don't have to be just astronomy students. We would like to reach out to the rest of campus and community. Perhaps advertising at other businesses around town or can we email blast to the entire campus?  
**Describe Plans & Activities**  
**Supported:** Work with the Business Department Work Experience Program to hire students who have been studying marketing to help develop and implement a marketing plan for the planetarium with the

**Reporting Year:** 2017-18  
**% Completed:** 25  
Worked with the marketing department to advertise the August 2017 eclipse event which resulted in record attendance (4000+). Advertising for monthly planetarium shows still needs improvement. Talked to the business department and looking into getting a marketing student intern to help. (05/18/2018)

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goal of increasing weekend show attendance.

Work with marketing to create more ways for students and the general public to learn about the exciting events we regularly hold on and off campus.

**Lead:** Heather Jones

**Type of Request:** Marketing

**In Progress -** Planetarium Bus Drop Off Area

Over 13,600 students from local schools visited the planetarium during the 2016-17 school year; that's nearly 200 busses on campus throughout the year. Currently schools are requested to drop off their students in Lot F and then walk to the planetarium across the pedstiran bridge, but long distance trek has been problematic for students using crutches or walkers. Creating a designated area for planetarium bus drop-offs in close proximity to the planetarium would help limit confusion and congestion in the parking areas as well as be much safer for the students visiting Mt. SAC for the first time.

**Describe Plans & Activities**

**Supported:** Build a bus drop-off area close to the planetarium. Signage will be needed to direct busses to the drop-off area. Cement work needed to build the bus path and change the traffic patterns.

**Lead:** Heather Jones + Facilities

**Type of Request:** Facilities

**In Progress -** Park Benches in Front

**Reporting Year:** 2017-18

**% Completed:** 0

Email was sent to Mika Klein about including a planetarium bus drop off in the master plan or get permission to use the transit center drop off for school kids. (05/18/2018)

**Reporting Year:** 2017-18

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	<p>of Planetarium</p> <p><b>Describe Plans &amp; Activities</b>  <b>Supported:</b> Local schools frequently visit the planetarium for field trips. Part of their field trip experience is a rocket building and launching activity. Rocket are launched next to the planetarium on the 26 East grass next to the the energy building. Frequently adults with the group look for places to sit while watching their students launch the rockets and end up sitting on the planetarium back stairs instead. These stairs are not comfortable, block an exit and don't have enough room for everyone who wants a seat. Adding park benches nearby would relieve this problem and provide additional seating for Mt. SAC students. The best location for these park benches would be on the north side of the large tree in front of the planetarium's main entrance parallel to the sidewalk (not on the grass).</p> <p><b>Lead:</b> Heather Jones + Facilities  <b>Type of Request:</b> Facilities  <b>Planning Unit Priority:</b> Medium  <b>In Progress -</b> Planetarium Expansion</p> <p><b>Describe Plans &amp; Activities</b>  <b>Supported:</b> The planetarium is frequently visited by local schools for field trips. It is not unusual to have 150 students here at a time. During that time space is very limited in the planetarium lobby, as students take up all of the available floorspace. There is literally no room expand our</p>	<p><b>% Completed:</b> 0  Email was sent to Mika Klein about improving the outdoor spaces around the planetarium as part of the master plan. (05/18/2018)</p> <p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 0  Email was sent to Matthew Judd requesting expansions to the planetarium for the master plan. As of 4/9/2018 none of these requests made it into the final draft of the master plan (05/18/2018)</p>



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programs or displays. Additional display space and project areas would ease the congestion, and allow us to offer more programs to the hungry public as well as Mt. SAC students. Additionally the planetarium is in desperate need of storage space and expanded restrooms to accommodate our growing attendance. The planetarium can be added to by expanding into the hillside on the southeast side of the building

**Lead:** Heather Jones + Facilities

**Type of Request:** Facilities

**Planning Unit Priority:** Medium

Planetarium Marketing Intern

**Describe Plans & Activities**

**Supported:** Offer an opportunity for a student to exercise what they are learning and get valuable work experience by expanding the marketing of the planetarium to students and the community.

**Lead:** Heather Jones

**Type of Request:** Staffing, Marketing

**Planning Unit Priority:** Medium

**Reporting Year:** 2017-18

**% Completed:** 25

We are working with the Business Department work experience program to hire students who have been studying business marketing to help develop and implement a marketing plan to increase weekend show attendance. (05/23/2018)

<p><b>Student access</b> - Make efforts to increase student access to faculty members and facilities. We encourage use of the Earth Science Resource Room, Redinger Exploration Center, Mt. SAC Randall Planetarium and the observatory, in addition to the classroom and the faculty offices to ensure student access. <b>Status:</b> Active <b>Goal Year(s):</b> 2016-17, 2017-18 <b>Date Goal Entered (Optional):</b></p>	<p><b>In Progress</b> - Department retreat for curriculum and SLO planning. We need to put the information gained from SLO and GEO data to use in the classroom in a meaningful way. We have lagged behind on this. <b>Lead:</b> Faculty <b>One-Time Funding Requested (if applicable):</b> 1000 <b>Type of Request:</b> Professional Development <b>Planning Unit Priority:</b> High</p>	<p><b>Reporting Year:</b> 2016-17 <b>% Completed:</b> 50 Our department has completed a full SLO cycle, including use of results, for all of our courses. However, there was no department retreat to work on outcomes or training sessions were planned or funded. , (06/27/2017)</p>	<p>: SLO data collection were successfully done. Our department conduct SLO data collecting in the same year as when 4 year review for the courses are due. As of now, vast majority of our courses are due at the same time. this create huge amount of work of completing SLOs and curriculum review once every 4 years. Our department will look into reviewing the</p>
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<p>09/01/2016</p>	<p><b>In Progress</b> - Staffing, supplies, and repairs for the Exploration Center.</p> <p><b>Describe Plans &amp; Activities Supported:</b> Exploration center upkeep: Exploration center updates and staffing. Exploration center first opened in 2014. It is a wonderful space, but we have not had adequate staff or budget to properly update and introduce new exhibit. Requesting \$64,400 for 1/2 time museum tech and \$2,000 per year for supplies and repairs.</p> <p><b>Lead:</b> Julie Bray-Ali</p> <p><b>On-Going Funding Requested (if applicable):</b> 66400</p> <p><b>Type of Request:</b> Staffing, Instructional Supplies</p> <p><b>Planning Unit Priority:</b> High</p> <p><b>What would success look like and how would you measure it?:</b> Exploration center will have regular scheduled open hours with knowledgeable staff members to help all guests. Exhibits will be updated to make better use of technology and to better explain current scientific ideas.</p> <p><b>Documentation Attached?:</b> No</p> <p><b>In Progress</b> - An increase in student worker budget. We have been able to take advantage of work study students to keep resource room and exploration center open. It would be ideal for the exploration center to</p>	<p>curriculum in 2 years for about half of our courses, that way not all courses comes up for the 4 year review in a same year. (06/29/2017)</p> <hr/> <p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 25</p> <p>Julie Bray-Ali has met with Matt Judd and Mark Cooper to discuss the direction of the Exploration Center and Meek. We all agree we need substantial student worker and a museum tech, as well as regular supply and repair budget. Matt has brought this up to the instruction office and we hope to see more progress on this topic in early summer 2018. Larry Redinger and I have met the representative from ViewSonic at the exploration center and we are in discussion on modernizing the Exploration Center with digital wallpaper (instead of having student research posters, we will have rotating digital files of student posters), as well as an information kiosk. We will continue to work on this project during summer 2018 and during the academic year of 2018 &amp; 2019 (05/18/2018)</p> <hr/> <p><b>Reporting Year:</b> 2016-17  <b>% Completed:</b> 50</p> <p>Bard Moormon from Omni Globe,ARC Science Simulations has send us software update and additional content (i.e. updated image of Pluto). Software update is not a requirement, but as it has been 4 years since the unit was purchased, we will be working with IT department to install new software and contet during summer 2017. (06/14/2017)</p> <hr/> <p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 0</p> <p>Increase in student employee budget was discussed. We were not granted budget increase this year. Our student worker budget has not changed since when the minimum wage was \$8 / hour. Minimum wage has increased since</p> <hr/> <p>: Omni globe has been an important part of the Exploration center exhibit. Guests to the exploration center enjoy exploring earth and other solar system bodies on their own. Our geology and astronomy classes take advantage of this resource as well. With new update and additional content, we can expand out use of the Onmi Globe. (06/14/2017)</p>
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	<p>have Geology or astronomy student to work there as a museum guide. We can not find students with the qualification from work study students.</p> <p><b>Describe Plans &amp; Activities</b></p> <p><b>Supported:</b> Increase in student worker budget. We requested an increase in student employee budget in the 2017-18 school year, but it was not granted. Our student worker budget has not changed since since the minimum wage was only \$8 / hour, even though the minimum wage has now increased to \$11 / hour. Plus, the minimum wage is scheduled to increase to \$15 / hour in 2025. We would like to request increase in student employee budget to at least match the increase in COLA / minimum wage. For the \$11/hour, we need our budget to be increased by 37.5% to return to the same number of student worker hours that we used to have. In January 2019, we also request an additional increase by 8.3%, which results in a total increase of 50% to current budget.</p> <p><a href="https://www.dir.ca.gov/dlse/faq_mi">https://www.dir.ca.gov/dlse/faq_mi</a></p> <p><b>Lead:</b> Julie Bray-Ali and Mike Hood</p> <p><b>Type of Request:</b> Staffing</p> <p><b>Planning Unit Priority:</b> High</p> <p><b>What would success look like and how would you measure it?:</b> Much of our student worker budget is used for lab assistants. Having greater numbers of lab assistants is great for students enrolled in the lab classes as well as for those lab assistants to gain</p>	<p>and now is at \$11 / hour. Minimum wage is scheduled to increase to \$15 / hour in 2025. We would like to request increase in student employee budget at least to match the increase in COLA / minimum wage. We will continue to request increase in student worker budget. (05/18/2018)</p>

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	<p>experience in learning more and teaching the subject.</p> <p><b>Documentation Attached?:</b> No</p> <p><b>In Progress -</b> Wave Tank for Lecture Classrooms</p> <p><b>Describe Plans &amp; Activities</b></p> <p><b>Supported:</b> We have been missing a wave tank to simulate wave forms and sedimentary bedrooms in our Building 11 classrooms for a number of years. This equipment is essential for teaching oceanography lectures.</p> <p><b>Lead:</b> Dave Mrofka</p> <p><b>One-Time Funding Requested (if applicable):</b> 7000</p> <p><b>Type of Request:</b> Equipment - new</p>	<p><b>Reporting Year:</b> 2016-17</p> <p><b>% Completed:</b> 75</p> <p>The wave tank was delivered in May of this year and is in the classroom but awaiting completion (install of wave making device). We were able to purchase it for under \$1000, thousands less than budgeted. (06/27/2017)</p>	
	<p><b>In Progress -</b> Professional Development Opportunities</p> <p><b>Describe Plans &amp; Activities</b></p> <p><b>Supported:</b> Instructors will have access to subject-specific professional development opportunities that will assist in designing student research and inquiry-based activities (particular focus on improving the oceanography laboratory materials and curriculum)</p> <p><b>Type of Request:</b> Professional Development</p>	<p><b>Reporting Year:</b> 2016-17</p> <p><b>% Completed:</b> 50</p> <p>Several faculty members(Mark Boryta, Tania Anders, Julie Bray-Ali) and Geol99 student (Seiji Ueda) have attended 4-hour workshops hosted by Vernier at locations around the southland, helping make us more comfortable with the equipment. (06/27/2017)</p>	<p>: Attending the workshop was informative. We also have learned that it would be beneficial to have Logger pro software rather than the free software to run the equipment . Additional software will allow our studnets to conduct complex analysis of data. (06/29/2017)</p>
	<p><b>In Progress -</b> Review classroom setup and layout to create optimal learning space.</p> <p>Some of our classroom does not have appropriate classroom set up conducive for effective collaborative learning - large maps, charts, posters, models, samples, demos and appropriate furniture.</p>		

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**Describe Plans & Activities**

**Supported:** Funds to buy additional classroom models, replacement furnitures, posters / charts / maps, globes, demos and more. Exact request value will be determined soon. (project quote has been submitted for the furniture component.)

**Type of Request:** Equipment - new, Furniture, Supplies (less than \$200 per item)

**Planning Unit Priority:** High

**Full Funding Requested** - Exploration center computer displays and electronic kiosk stations.

**Describe Plans & Activities**

**Supported:** We will install computer displays and kiosks that will allow us to do a better job of teaching visitors about science and technology.

**Lead:** Julie Bray-Ali and Mike Hood

**One-Time Funding Requested (if applicable):** 15000

**Type of Request:** Facilities , Instructional Equipment, IT Support

**Planning Unit Priority:** High

**What would success look like and how would you measure it?:** Our exploration center will be updated and equipped with cutting edge technology to help increase the interest in our science departments.

**Full Funding Requested** - Supplies, exhibit furniture and carts to allow for rotating exhibits at the Exploration Center. Secure storage for exhibit items that are not on display.

**Describe Plans & Activities**

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**Supported:** The building 61 Cube includes the Exploration Center for physical sciences and the Meek Museum for biological science. Currently, the physical science side is predominantly made up of geology and astronomy displays. We will design and build rotating exhibits for the central area of the Exploration Center to also feature chemistry, physics and engineering. Mike and Julie will work with the other departments to design and build the exhibits, which will be changed out every semester. We will also work with Mark Cooper to bring in exhibits that display the connections between biological sciences and physical sciences. For example, Mark Cooper has recently added some dinosaur displays, which would be a perfect bridge between biological science and geology. In the future, we can have exhibits bridging the gaps between Oceanography and Marine biology, or Engineering and anatomy..

**Lead:** Julie Bray-Ali and Mike Hood. Working with Mark Cooper from Biology and Larry Redinger.

**Planning Unit Priority:** High Animation/Planetarium Partnership

### Describe Plans & Activities

**Supported:** The animation and planetarium program would like to develop a relationship where students get valuable work experience and opportunity to create visuals campus produced planetarium shows.

**Reporting Year:** 2017-18

**% Completed:** 25

There was a meeting of Art and Natural Science Deans and professors on March 12, 2018. Everyone was supportive of the idea. More follow up work needs to be done to solidify these relationships and implement these ideas. Heather Jones will be attending the Astroviz Conference in Pasadena in June to learn more about innovations in astronomy visualizations and how they can be transferred to the

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	<p><b>Lead:</b> Heather Jones, Animation Department  <b>Type of Request:</b> Staffing, IT Support  <b>Planning Unit Priority:</b> Medium</p>	<p>planetarium. (05/23/2018)</p>
<p><b>Department Promotion</b> - Design and implement opportunities to publicize our department's offerings, including outreach ("Debbie Day") and attending and presenting at scientific meetings and workshops (NAGT, GSA, AGU, IAU, SAGE)  <b>Status:</b> Active  <b>Goal Year(s):</b> 2016-17, 2017-18  <b>Date Goal Entered (Optional):</b> 09/01/2016</p>	<p><b>In Progress</b> - Improve Department Website - We will work with IT specialists to improve the department website to highlight opportunities for students and showcase faculty, staff and student accomplishments.  <b>Describe Plans &amp; Activities Supported:</b> Website maintenance  <b>Lead:</b> Hilary Lackey  <b>Type of Request:</b> Technology Software Systems - upgrade</p>	<p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 0          Little progress has been made. Now that the college website overhaul is complete and the images and files don't keep getting removed with each iteration, we can make improvements to our website. (05/18/2018)</p> <hr/> <p><b>Reporting Year:</b> 2016-17  <b>% Completed:</b> 50          Hilary Lackey has been working with IT to continue to improve our website. We will continue to improve this, to highlight course offerings and especially our diverse field trip programs. (06/27/2017)</p>
	<p><b>In Progress</b> - Install bulletin board near oceanography faculty offices for posting of current news, student opportunities etc.  <b>Describe Plans &amp; Activities Supported:</b> Purchase and install bulletin board  <b>Lead:</b> Tania Anders  <b>One-Time Funding Requested (if applicable):</b> 700  <b>Type of Request:</b> Facilities</p>	<p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 25          Bulletin board was requested March 7, 2018 and wall space has been measured. It looks like we will be receiving a board from surplus. A bulletin board for oceanography has been on the request list since 2015. Faculty hope that without funds having to be used for a new purchase, that we will see a board from surplus added soon. (05/18/2018)</p>
<p><b>Geoscience Roadmap</b> - Develop a geoscience course roadmap with courses necessary for transfer in the geosciences. To be printed on brochure for the ESA department  <b>Status:</b> Active  <b>Goal Year(s):</b> 2016-17, 2017-18  <b>Date Goal Entered (Optional):</b> 09/01/2016</p>	<p>Develop a course road map to assist students in finding the correct courses to take to transfer into a geoscience program or progress toward a geoscience career.  <b>Lead:</b> Dave Mrofka and Becca Walker</p>	<p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 50          This partly done for all of our courses (Astr, Geol, Meto &amp; Ocea). We have a counselor assigned to our department and we have worked on the description of all our our courses including the field trip expectations. Now that we have 2 additional courses as of fall 2018, and other courses in the pipeline, we will continue to update the ESA course guide to assist our students better on what courses to complete and in what order. (05/18/2018)</p>

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**Reporting Year:** 2016-17  
**% Completed:** 75  
 1.) Dave Mrofka and Becca Walker are part of the SAGE 2YC Faculty agents of change project. As part of this project, a workshop was convened in December 2016 for local 2YC geoscience faculty and counselors. Mt. SAC faculty and counselors worked together to discuss transfer issues and course planning for students intending on majoring in the geosciences. 2.) There is transfer information for CSULA and CSUF on the bulletin board in building 60 with geoscience and supporting science courses needed for a Bachelors degree and those courses that can be fulfilled at Mt. SAC. (06/27/2017)

<p><b>Faculty and Staff Hiring</b> - Hire more adjunct and full-time faculty members in each area.  <b>Status:</b> Active  <b>Goal Year(s):</b> 2016-17, 2017-18  <b>Date Goal Entered (Optional):</b> 05/09/2017</p>	<p><b>In Progress</b> - Hire full time astronomy professor</p> <p><b>Describe Plans &amp; Activities Supported:</b> During 2016-2017, only 57% of the classes were taught by full time faculty members as part of their regular load. We would like to increase astronomy sections, especially now that we will have Astr 11 and are looking into creating an Astronomy AA degree. Also, the number of astronomy sections we can offer is currently limited by the number of instructors we have to teach the classes. We have tried to hire more part-time instructors, but finding quality adjunct instructors has been very difficult. As it is nearly impossible to find new adjunct (we conducted 6 adjunct interviews in last 2 years and hired one), we need to hire a full time faculty member to be able to grow our department.  <b>Lead:</b> Mike Hood and Julie Bray-Ali  <b>On-Going Funding Requested (if</b></p>	<p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 0          We applied to hire a new astronomy position, but were not close to being highly ranked enough to get to hire someone for this position. (04/05/2018)</p>
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*Where We Make an Impact: Closing the Loop on Goals and Plans*

**applicable):** 100000

**Type of Request:** Staffing

**Planning Unit Priority:** High

**What would success look like and**

**how would you measure it?:** Hire a new full time astronomy faculty member to better serve our students.

**In Progress** - Hire one or more geosciece faculty member

**Reporting Year:** 2017-18

**% Completed:** 0

We were not ranked high enough in our division or the college as a whole in order to hire this position. We will continue to work toward this goal, especially as we move closer to offering a geotech degree. (04/05/2018)

**Describe Plans & Activities**

**Supported:** During 2016-2017, only 41% of the classes were taught by full time faculty members as part of their load. When there are too many sections taught by adjunct, it is possible for the quality of instructions to start to slip. We need to hire one or two full time faculty members to accommodate for the recent increase in number of sections offered in GeoScience. This is especially important as we are in process of developing geotech program.

**Lead:** Mike Hood and Julie Bray-Ali

**On-Going Funding Requested (if**

**applicable):** 100000

**Type of Request:** Staffing

**Planning Unit Priority:** High

**What would success look like and**

**how would you measure it?:** Hire full time faculty member to better serve our geoscience students. This is especially important as we are in process of developing geotech program.

**In Progress** - Hire more adjunct faculty members.

**Reporting Year:** 2017-18

**% Completed:** 50

We continue to work to add more adjunct faculty members

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
	<p><b>Describe Plans &amp; Activities</b>  <b>Supported:</b> We have been advertising our adjunct pool through our HR department, but we are not receiving many applications. We need to look into different publications to advertise and perhaps attend job fairs to recruit.  <b>Lead:</b> Mike Hood and Julie Bray-Ali  <b>Type of Request:</b> Staffing  <b>Planning Unit Priority:</b> High  <b>What would success look like and how would you measure it?:</b> Hire more adjunct professors in geoscience and astronomy.</p> <p><b>Full Funding Requested -</b> Hire tutors -</p> <p><b>Describe Plans &amp; Activities</b>  <b>Supported:</b> We will recruit excellent students to work as tutors in our program. It would be great to have tutors at earth science resource room on regular schedule.  <b>Lead:</b> Julie Bray-Ali and all other faculty  <b>Type of Request:</b> Staffing  <b>Planning Unit Priority:</b> High  <b>What would success look like and how would you measure it?:</b> Hire tutors to have wide availability of tutoring scheduled in various subject matter. This will give our students more chances to learn the material in class, improving student success.</p> <p><b>Full Funding Requested -</b> Full time</p>	<p>to our department. We hired three new part-time faculty members to the Earth Science side of the department; one started in Summer 2017, one started in Fall 2017, and one started in Winter 2018.</p> <p>Despite our repeated attempts to add more faculty members on the astronomy side, we have been unable to find any new people to hire to our department. Julie Bray-Ali and Mike Hood attended a community college job fair in the winter term, but did not find any new astronomy faculty members through this job fair either.</p> <p>Starting Fall 2018, one new adjunct faculty in astronomy will teach one section per semester. We are able to confirm one of our adjunct faculty on extended leave to return starting Fall 2018.</p> <p>We will continue to work toward adding new adjunct faculty members to both the Earth Science and Astronomy sides of the department. (04/05/2018)</p>

*Unit Goals*

*Resources Needed*

*Where We Make an Impact: Closing the Loop on Goals and Plans*

lab tech in geology

**Describe Plans & Activities**

**Supported:** Hire a geology science lab tech. With implementation of more demonstrations, activities, technology and field trips, it is extremely difficult to have all needed tasks done by a 50% tech in the geology area. We need either an additional geology tech position to fill these roles.

The ESA department would benefit from an additional full-time tech in a variety of important areas. The current geology tech is unable to fulfill many of the duties the department asks of him, in part because of time limitations. We would like to focus the current tech's attention on the Oceanography part of our department and on overseeing operation of the Earth Science Resource Room, as well as continuing to support the department clerically (POs, quotes, etc.) in that location. This would allow the department to use student workers to work in the Discovery Center, which we hope to continue to use more for Mt. SAC students and the general public. Our new tech would have three main priorities:

-Support the geology lab and lecture rooms. This mostly involves maintaining extensive collections of student and classroom samples, overseeing resupply of experiment

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supplies, setting up classroom experiments and general organization.

-Support the extensive investment the department has in proper and safe running of field trips. The tech will make sure that items students use regularly are clean and safe to use, that the field supplies are inventoried and ready for future trips, and that our collection of field equipment is maintained.

-Support the operation of the Discovery Center. Organizing and coming up with new displays and activities has fallen on different people in the department without a lead person to go to if something needs to be fixed or repaired. The tech would train student workers, come up with ideas for displays, help run some activities and generally maintain the samples and displays in that area.

**Lead:** Mike Hood and Julie Bray-Ali

**On-Going Funding Requested (if applicable):** 80000

**Type of Request:** Staffing

**Planning Unit Priority:** High

**What would success look like and how would you measure it?:** Hire a new geoscience lab tech.

Part time planetarium show presenter

**Describe Plans & Activities**

**Supported:** Part time planetarium show presenter- Community outreach is a large part of the

**Reporting Year:** 2017-18

**% Completed:** 0

We are researching a few options to find funding for this position. In addition to the investment the college could make toward fulfilling this need, the money for this position could come in part from donations from the Randalls, work

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
	<p>planetarium's mission. We offer field trip experiences for local schools, scout groups and families during the week and on the weekends. The planetarium has grown in popularity enough that we regularly sell out our available time slots during the week. To keep up with demand we have doubled the planetarium student staff to help with lobby activities, however our show presenting staff is still only two people: Heather Jones and Jessica Draper. Increasingly, Heather and Jessica's time has become dominated by the day-to-day needs of running these outreach activities instead of other projects. Unfortunately it has gotten to the point where they cannot take on new projects or expand on any programs at the planetarium or telescope observatory. Additional staff is desperately needed to avoid cutbacks in the outreach program.</p> <p><b>Lead:</b> Heather Jones  <b>Type of Request:</b> Staffing  <b>Planning Unit Priority:</b> High</p>	<p>experience funding, grant funding, or other sources. We are hopeful for a solution. (05/23/2018)</p>
<p><b>Develop Landers Site</b> - Develop the site in Landers, CA to allow Earth Science and Astronomy students to make use this valuable resource. This site is in a remote, dark location, making it an ideal place for our students in courses and our students doing research.</p> <p><b>Status:</b> Active  <b>Goal Year(s):</b> 2017-18, 2018-19  <b>Date Goal Entered (Optional):</b> 06/30/2017</p>	<p><b>Report directly on Goal</b></p>	<p><b>Reporting Year:</b> 2017-18  <b>% Completed:</b> 0  Outline of items needed and estimate cost was sent to Matthew Judd. Faculty and staff visited the site on 5/12/18 to assess the physical conditions of the property (weather conditions, local light pollution etc...). We found that this site would be ideal for astronomical observing, and look forward to being able to use this site in the future. Contacts have been made with the Riverside Astronomical Society who have extensive experience building observatories in Landers, CA which is where their main observing site is located. (05/18/2018)</p>

*Unit Goals*

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**In Progress** - Develop basic infrastructure for Landers site.

**Describe Plans & Activities**

**Supported:** Internet access, including wifi, firewall, USB extender, etc. - \$20,000

Facilities construction - Cement, shelter walls, furniture, etc. - \$30,000

**Lead:** Heather Jones and Facilities

**Type of Request:** Equipment - new, Facilities

**In Progress** - Purchase, build, and install telescope infrastructure.

**Describe Plans & Activities**

**Supported:** Telescope Mount - \$21,000

Telescope Pier - \$1,000

Clamshell Dome - \$30,000

**Lead:** Heather Jones, Facilities

**One-Time Funding Requested (if applicable):** 52000

**Type of Request:** Equipment - new, Facilities

**In Progress** - Purchase Telescope for Landers remote observing site.

**Describe Plans & Activities**

**Supported:** Plane wave 20" telescope - \$50,000

**Lead:** Heather Jones

**One-Time Funding Requested (if applicable):** 50000

**Type of Request:** Equipment - new

**In Progress** - Purchase CCD camera, filter wheel, and software necessary to make remote astronomical observations at the Landers site.

**Describe Plans & Activities**

**Supported:** Finger Lakes CCD -

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\$14,000  
 filter wheel - \$2,000  
 MaxIm DL - \$675  
 SkyX Pro w/ Camera add on - \$675  
 ACP with service Agreement - \$2,800  
 Starlight Xpress Lodestar X2 - \$700  
**Lead:** Heather Jones  
**One-Time Funding Requested (if applicable):** 20850  
**Type of Request:** Equipment - new, Technology Equipment - new, Technology Software Systems - new  
**In Progress** - Purchase and install all-sky camera and weather station to allow for remote astronomical observing at the Landers site.  
**Describe Plans & Activities**  
**Supported:** All Sky Camera and weather Station - \$2750 from SBIG  
**Lead:** Heather Jones  
**One-Time Funding Requested (if applicable):** 2750  
**Type of Request:** Equipment - new

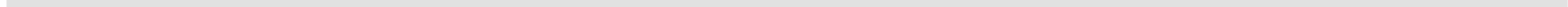
**Increased Collaboration** - Increase collaboration with other departments across campus to help with overall student success rates  
**Status:** Active  
**Goal Year(s):** 2017-18  
**Date Goal Entered (Optional):** 05/21/2018

Learning Community  
**Describe Plans & Activities**  
**Supported:** Create a learning community, which would include Oceanography, a first year seminar and one to two other courses (such as English or Political Sciences)  
**Planning Unit Priority:** High  
**What would success look like and how would you measure it?:** Higher student success rates, measured by percentage of students passing courses.

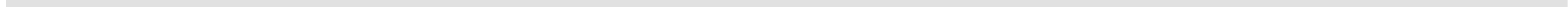
One College One Book Initiative  
**Describe Plans & Activities**  
**Supported:** Department

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involvement in "One College-One Book" initiative  
**Lead:** Tania Anders  
**Planning Unit Priority:** High  
**What would success look like and how would you measure it?:**  
 Increased visibility of our department across campus; increased enrollment in our courses.  
 Oceanography Study Abroad  
**Describe Plans & Activities**  
**Supported:** Involve Ocean Sciences in a Study Abroad Program  
**Lead:** Tania Anders  
**Planning Unit Priority:** Medium  
**What would success look like and how would you measure it?:**  
 Increased visibility of our department across campus; increased enrollment in our courses.



**CTE Geotechnical Careers** - Develop a CTE for students wishing to pursue careers in geotechnical, engineering geology, environmental geology fields after two years of college work  
**Status:** Archive  
**Goal Year(s):** 2016-17  
**Date Goal Entered (Optional):** 09/01/2016  
**Date Goal Archived/Inactivated (Optional):** 06/27/2017



**Geology Bachelor's degree** - Begin review of plausibility for Bachelor's degree program in Geological Sciences  
**Status:** Archive  
**Goal Year(s):** 2016-17  
**Date Goal Entered (Optional):**

**In Progress** - Apply to one-time state pilot program to offer a B.A./B.S. degree related to Geology  
**What would success look like and how would you measure it?:** BA / BS degree in Geology to be established.

**Reporting Year:** 2016-17  
**% Completed:** 100  
 MtSAC committee considered but did not put our proposal forward, partly due to staffing issues and partly due to our not having certain core courses ready to go. Perhaps looking into Geotech certificate or AA program would be more beneficial for students and achievable. (06/25/2017)



*Unit Goals*

*Resources Needed*

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09/01/2016