

Department Plan
Long Beach City College
Dept - Physical Science

Dept - Physical Science

Mission: To teach courses which provide an understanding of physical concepts and thus enable students to transfer to four-year institutions and to enable students to apply the scientific method to gain an evidenced-based understanding of contemporary issues

Description: The primary objective of the Physical Science Department is to provide transfer level courses in the various areas of physical science -Astronomy, Chemistry, Environmental Science, Geology, Physical Geography, and Physics - utilizing the latest teaching tools and laboratory equipment as we are able to obtain and incorporate them into our courses.

The Physical Science Department consists of 10 full time instructors, 2 lab technicians, 15 to 20 adjunct instructors, and (funds permitting) student lab assistants.

We offer the following courses, all of which meet the transfer requirements for lower division credit at the CSU's and UC's:

Astronomy:

- ? ASTR 1 Elementary Astronomy
- ? ASTR 1L Astronomy Laboratory

Chemistry:

- ? CHEM 1A/B General Chemistry
- ? CHEM 2 Elementary Chemistry
- ? CHEM 3 Intro to Gen., Organic, and Biochemistry
- ? CHEM 12A/B Organic Chemistry

Environmental science:

- ? ENVRS 1 Energy for the Future

Geology:

- ? GEOL 1/1H General Physical Geology
- ? GEOL 2/2L General Physical Geology/Lab
- ? GEOL 2F Geology Field Trips
- ? GEOL 3/3H Historical Geology
- ? GEOL 4 Field Geology
- ? GEOL 5 Environmental Geology
- ? GEOL 7 AD Field Studies: Western Environments
- ? GEOL 16 Field Techniques/Geol: So CA Deserts
- ? GEOL 17 Geology of Southern California Deserts
- ? GEOL 18 Geology of California

Physical Geography:

- ? PGEOG 1 Earth Surface Study
- ? PGEOG 2 Weather and Climate

Physics:

- ? PHYS 2A/B: General Physics
- ? PHYS 3A/B/C: Physics for Science and Engineering

Summary of Access, The Physical Science Department serves two main categories of students:

Productivity & Effectiveness: (1) Those who need a science course to fulfill the requirements for transferring into a 4 year school to obtain a bachelors degree

(2) Those who have the specific goal of completing the lower division sequence of science courses so as to be able to transfer into a science or premed major at a 4 year school.

The first group consists of students are enrolled in the ASTR 1, ENVRS 1, and PGEOG 1 courses. They account for 76% of our enrollment and in general show a lower success rate (47%) and GPA (1.99) than the second group which has a higher success rate (60% and GPA (2.51). Since the classes taken by the first group of students do not have prerequisites, many of these students are just beginning their college experience and may not have the same degree of motivation as students in the second group, who have series of courses each of which is a prerequisite to the next course in the sequence. An informal survey of the students taking ASTR 1 indicated that fewer than 50% of these students bought the assigned text book. Possibly these students as part of their counseling should be exposed to peer led motivational seminars, similar to the SI system which increases the success rate of the second group.

In common with the rest of the campus, the Physical Science Department is enrolling more students - 4772 to 5195 - in fewer sections - 132 to 128. This has resulted in higher efficiency numbers, but a degraded learning experience for the students. In lecture classes students are sitting on the floor or are raiding other classrooms to

borrow desks. In lab classes, experiments designed for groups of 2 students now have 3 or 4 students in a group. The lab used for CHEM 1B and Organic Chemistry was designed with 24 work stations - the typical number of students in those classes 10 years ago, when the building was redesigned. Since then, we have reduced the number of classes offered from 5 to 3 while the total enrollment increased. The result is that we now have 36 students in a lab designed for 24. This overcrowding not only reduces the ability of the students to complete their experiments in a timely fashion, but also presents major safety concerns and exceeds standards set by national accrediting organizations.

Internal Conditions (see In the past several years, the Physical Science Department has received many technological upgrades.

- Help for list):**
1. The computers in the chemistry and physics labs have been upgraded in the past 3 years.
 2. Through capital outlay grants we have been able to replace and modernize the equipment used for mechanics and electronics experiments in our physics labs.
 3. Capital outlay has also allowed us to purchase modern equipment for melting point measurements in the chemistry labs..
 4. The AV systems in our labs should be upgraded to the level of the systems that are installed in the lecture rooms.
 5. The planetarium is fully operational with its computer driven full dome projection system, however we will need an additional staff person to maintain the equipment in addition to continuing to purchase the service contract with the manufacturer.
 6. The roof top observatory needs to be upgraded or rebuilt. We also need a roof top storage facility for our telescopes.
 7. We need to hire an astronomy/physics instructor, since one of our fulltime astronomy faculty has just retired and one of the other astronomers is working on a reduced load, with the intention of retiring. Both sections of the Physics 3A course (the first physics course for physics and engineering majors) are currently being taught by adjunct instructors. We should have a full time instructor teaching at least one of these sections. This instructor would have the responsibility for overseeing and setting standards and SLO's for the 3A class.
 8. Our supplies budget needs to be increased. Although our supplies budget has not increased (in fact this past year it was cut by a greater percentage than the other budget areas in the department), the number of students and the prices of the chemicals and lab supplies used by these students have increased. Much of our regularly used equipment - \$ 30 laboratory burners for example - needs regular replacement. The price of the individual items is too small for the capital outlay budget, but replacing 10 or more burners per lab results in a \$1000 expenditure per semester.
 9. We also need to increase our repair budget, since much of our equipment is aging and therefore more in need of repair.

External Condition- Grants xx

Available:

External Conditions- Other : The only external conditions affecting the Physical Science Department are the modifications of course offerings and content in nearby 4 year transfer institutions. In order to enable our students to transfer successfully, we change our courses to match their lower division offerings. The most recent example is the change of our 2 semester (8 units) General, Organic and Biochemistry course to a one semester (5 units) course to match the changes at the nearby 4 year schools. In the past the UC system required us to upgrade the math prerequisite for our General Chemistry course in order to maintain the transferability of the course.

Faculty & Staff : Department Head: J. Danner

The Physical Science Department has 10 full time instructors, 2 lab technicians, and 15 to 20 adjunct instructors

Astronomy: M. MacCallum, D. Sholle (reduced load) and 3 adjunct instructors

Chemistry: J. Danner, M. Jones, M. Perrot and 4-6 adjunct instructors

Environmental Science: N. Hancock, K. Hatch and 2-3 adjunct instructor

Geology: D. Britton, J. Tomson and 2-4 adjunct instructors

Physical Geography: K. Hatch, N. Hancock and 4-5 adjunct instructors

Physics: T. Eneyew and 2 adjunct instructors

Lab technicians: D. Daniels, M. Mercadante

Names & Titles of Program Full time faculty: D. Britton, J. Danner, T. Eneyew, N. Hancock, K. Hatch, M. Jones, M. MacCallum, M. Perrot,

Review Participants: D. Sholle, J. Tomson

Adjunct faculty: R. Lobliner, E. Mercado, C. Seligman

2009-2010 1. The infrared FTIR spectrophotometer has been restored to operating condition and is being used in the

Accomplishments: Organic Chemistry lab.

2. The Roto-Vap has been assembled and is being used in the Organic Chemistry lab.

3. Faculty members Doug Britton (geology) and Mary Perrot (chemistry) created/rewrote lab materials for their respective subject areas.

4. A revision of the melting point experiment has been tested in the CHEM 1A lab.

5. The RO feed for the distilled water system is being installed by facilities.

6. The Physical Science classroom at the PCC is currently being remodeled.

7. The department dealt with increased student demand and budget cuts with the least possible impact to

students

8. Additional planetarium training was provided for adjunct faculty to be able to teach in the planetarium.
9. Additional planetarium activities were created and implemented that increase student learning.
10. Physical Science Faculty member Doug Britton was awarded with the student selected award, "Valedictorian's Choice Award - Most Inspirational Teacher".
11. Physical Science Faculty member Dave Sholle was named a 2009 Outstanding Colleague for his work in planning, building, programming and maintaining the planetarium, which has been used by thousands of students

- 2010-2011** 1. Dr. Mike MacCallum joined the Physical Science Department as a full time Professor of Astronomy.
- Accomplishments:** 2. Kim Hatch received a teaching honor from CSULB students of the Golden Key International Honour Society
3. The old, deteriorating and therefore hazardous, lab chairs in D312 (the Geology laboratory) have been replaced.
 4. Because of the newly hired astronomy faculty, we were able to add highly successful ASTR 1 classes on Friday and Saturday mornings - non-traditional meeting times for astronomy.
 5. The Physical Science classroom at the PCC is being rebuilt and remodeled.
 6. The department dealt with increased student demand and budget cuts with the least possible impact to students by changing to micro-scale lab experiments, where possible, and, unfortunately, increasing the number of students working in groups.
 7. Additional planetarium training was provided for adjunct faculty to be able to teach in the planetarium.
 8. Additional planetarium activities were created and implemented that increase student learning.

Goal: More class offerings

To accommodate the large numbers of wait listed students, we want to offer more sections of our high demand courses. The only courses which do not have wait listed students are the higher level physics courses, but we will continue to offer them to maintain the integrity of our program. The lower enrollments in these classes are more than offset by the instructors in Astronomy, Environmental Science, and Physical Geography, who regularly enroll 5 to 10 more students than the class size maximum. Despite these instructors enrolling extra students, there are many students who are unable to enroll in one of these classes. We need to offer more sections of these classes.

Year: 2011 - 2012

Start Date: 08/08/2011

End Date: 06/01/2014

Goal Status: In Progress

Goal Priority: High

Rationale: More than 300 students were on the wait lists for the various classes we (Physical Science) offered in the fall 2010 semester. The number of students on the wait list for the fall 2011 semester was about 150, probably because of the automatic enrollment feature introduced this semester. In addition to this, most instructors reported that they had 5 to 10 students who came to the first class meeting hoping to get enrolled. If we are able to offer more classes, we will be able to fill them.

Strategies: Hire more full time faculty.

Responsible Parties: all

Campus supported by this goal: Both

Specify if goal is for

department or sub-area: Department/ Program

Name of sub-area, if applicable: astronomy/physics, geology/physical geography, chemistry, environmental science

Level of Support Needed: School or VP

Related Resources Needed

* Resources Needed Name: Astronomy/Physics instructor

Resources Needed A new full time faculty would be hired to teach astronomy and physics classes beginning in the fall of 2012 or

Description: 2013 at the latest. This person would also have to learn and utilize the planetarium projection system and perhaps offer public and K-12 planetarium shows as part of his or her load

Inter-Level/ VP Level Group NEW

Decision:

Fiscal Year: 2012 - 2013

Duration: On-going

Estimated Cost: 85000.0000

Type of Resource Requested: Personnel - Faculty

Requested:

Justification for Resource Currently we have one full time astronomy instructor (on reduced load), Professor Sholle, and one full time astronomy instructor recently added to the department, Professor MacCallum. Professor Seligman, who has recently retired, is willing to continue in an adjunct capacity for the near future teaching ASTR 1L. We have enough enrollment demand to add additional ASTR 1 and 1L classes, but no faculty to staff them. In addition, the first course (Physics 3A) in our calculus based physics sequence is now taught by two hourly instructors, as Professor Sholle is no longer teaching physics. Since Professor Sholle is working a reduced load with the intention of retiring, there is a very strong need for a new FT faculty member who will teach astronomy and physics courses, since the 2 disciplines do overlap. It is not practical to meet the ASTR enrollment demand with adjunct faculty since adjunct faculty could not be expected to spend the substantial time and effort needed to learn to properly use the planetarium projection system for classroom presentations, and it is extremely unlikely that we will find PT faculty that already know how to use and program our system. It is also not good for the health of the Physics sub-program to teach the starting majors course only with hourly instructors. Expected Results: A new full time faculty hired to teach astronomy and physics classes. This person would also be expected to learn and utilize the planetarium projection system and also offer public and K-12 planetarium shows as part of his or her load.

Department Code: 190100 Physical Science

Requested Funding Source: General Fund

* Resources Needed Name: Chemistry instructor

Resources Needed We need to offer more sections of CHEM 1A and 1B to meet the student demand for these courses. It is difficult

Description: to staff daytime teaching positions with well-qualified instructors

Inter-Level/ VP Level Group NEW

Decision:

Fiscal Year: 2012 - 2013

Duration: On-going

Estimated Cost: 85000.0000

Type of Resource Personnel - Faculty

Requested:

Department Code: 190100 Physical Science

Requested Funding Source: General Fund

* Resources Needed Name: Geology instructor.

Resources Needed The new instructor would primarily teach Geology. She/he could also teach Physical Geography classes and an

Description: occasional Environmental Science class, since the person meeting the requirements to teach Geology would also be qualified to teach in the other 2 areas.

Inter-Level/ VP Level Group NEW

Decision:

Fiscal Year: 2012 - 2013

Duration: On-going

Estimated Cost: 85000.0000

Type of Resource Personnel - Faculty

Requested:

Justification for Resource Approximately 50% of the classes in GEOL, ENVRS, and PGEOG are currently being taught by adjunct

Request: instructors. A full time faculty member would allow us to offer more classes without having more of our classes being taught by adjunct rather than full time faculty.

Department Code: 190100 Physical Science

Requested Funding Source: General Fund

* Resources Needed Name: PCC Physical Science classroom

Resources Needed A double size classroom at the PCC assigned to the Physical Science Department

Description:

Inter-Level/ VP Level Group Approved & Funded

Decision:

Fiscal Year: 2011 - 2012

Duration: Both (i.e., initial & maintenance costs)

Estimated Cost: 1000.0000

Type of Resource Facilities

Requested:

Justification for Resource We would like to expand the number of physical science classes offered at the PCC. In order to teach physical

Request: geography or environmental science effectively we need a dedicated classroom for the physical sciences. We need a double sized lecture room where maps could be permanently mounted on the walls. Since these classes are taught using power point presentations and frequent access to on-line resources, the room should have computer driven projection equipment and an internet connection. The room should also have a storage closet, where we can store rock and mineral samples, globes, and other equipment for use in our classes. Short of a storage space in the classroom, we would request a closet or other nearby storage facility. In addition we would

need to purchase maps and specimens dedicated to the classes offered at PCC

Department Code: 190100 Physical Science

Requested Funding Source: General Fund

Goal: improve classroom instruction with technology/methodology

Lecture facilities need constant upgrading to maintain current "state of the art" status.

Year: 2011 - 2012

Start Date: 10/01/2010

Goal Status: In Progress

Goal Priority: High

Rationale: New technology leads to more effective teaching by increasing student attentiveness and retention of material (according to tech reps)

Students have difficulty following lecture presentations because aging equipment or faulty projection surfaces produce faint or distracting images.

Strategies: Install new projectors and visual presenters in LAC-D301, LAC-D304, and LAC-D319.

Install visual presenters in LAC-D314 and LAC-D318.

Set up "clicker" technology in all Physical Science lecture rooms.

Increase the number of sections that are able to offer SI. This voluntary program, supplemental instruction, has been shown to increase both the overall class average and the student retention for classes for which we have been able to offer it.

Fix issues with using the planetarium dome as a projection surface in the astronomy classroom, D326, to improve delivery of educational content to students.

Responsible Parties: all

Campus supported by this LAC

goal:

**Specify if goal is for Department/ Program
department or sub-area:**

Level of Support Needed: School or VP

Related Resources Needed

* Resources Needed Name: Clickers

Resources Needed A distribution system for the clickers (Turning Technologies) that we purchased should be developed.

Description:

Inter-Level/ VP Level Group Approved & Funded

Decision:

Fiscal Year: 2010 - 2011

Duration: Both (i.e., initial & maintenance costs)

Estimated Cost: 0.0000

Type of Resource Other

Requested:

Justification for Resource The school of Health and Sciences has purchased 150 clickers, but a convenient means for distribution and

Request: collection from the students in the class must be developed.

Department Code: 190100 Physical Science

Requested Funding Source: General Fund

* Resources Needed Name: Install new projectors and visual presenters. .

Resources Needed New projectors and visual presenters would be installed in LAC-D301, LAC-D304, and LAC-D319

Description: Visual presenters would be installed in LAC-D314 and LAC-D318.

Inter-Level/ VP Level Group NEW for Fiscal Yr 2011-2012

Decision:

Fiscal Year: 2010 - 2011

Duration: On-going

Estimated Cost: 10000.0000

Type of Resource Equipment

Requested:

Justification for Resource Projection bulbs are fading and students have a difficult time seeing the projected images.

Request: Visual presenters were never installed in these rooms.

Department Code: 190100 Physical Science

Requested Funding Source: General Fund

* Resources Needed Name: Planetarium presentations

Resources Needed Fix issues with using the planetarium dome as a projection surface in the astronomy classroom, D326. About four years ago we were informally presented with a cost of \$60,000 to chemically and mechanically clean the dome projection surface, which would help to deal with the clarity of the projected images, but it would be a temporary fix. The permanent fix, which should be done over a summer when no astronomy classes are scheduled, would be to:

- 1 Erect scaffolding or use lifts and remove the individual curved aluminum dome panels that make up the projection surface. These panels are riveted to an exoskeleton made of round and square metal tubes, and the exoskeleton is hung by large chains from a massive steel ring welded to strong steel supports attached to the roof structure. The ring and exoskeleton are not problematic and would not need to be replaced.
- 2 Install permanent ladder and catwalk access in the area behind the dome.
- 3 Reroute the roof drain pipes and/or install protective gutters running along underneath them, to divert any potential leaks away from the dome.
- 4 Paint all surfaces behind the dome, including the shiny galvanized roof, flat black.
- 5 Re-configure the HVAC system so that air flows from behind the dome through the dome perforations toward the audience.
- 6 Using the existing exoskeleton and support ring, have Spitz (originally subcontracted to manufacture and install the dome) manufacture and rivet a new dome surface to the exoskeleton.

All educational content in the planetarium is projected onto the hemispherical dome, which is designed as a projection surface. It is made of powder coated curved aluminum panels with small perforations, so that loudspeakers mounted behind the dome surface may project sound through the dome surface toward the audience. There is no separate projection screen or whiteboard in D326, and because of the layout of the seating and room, it would not be possible to have them. During normal astronomy class activities, a standard definition Epson projector or a high definition Panasonic projector project images onto the front of the dome toward which students face. During planetarium presentations, the lighting in the room is completely off and the Digistar D3 projector at the center of the room projects an image onto the entire hemispherical dome using a large fisheye lens.

The problem is that the architect and contractor made several major mistakes in the design and installation of the planetarium and dome.

During this period, faculty had little input into the process, and that input was usually ignored. The problems compromised the dome as a projection surface from the beginning, and these problems have grown over time. The problems are:

- 1 The inner surface of the roof structure beyond and above the dome should have been painted a flat black. Instead, most of it was left as shiny galvanized steel. The small amount of light that leaks through the perforations in the dome from the projected images (this happens in all planetaria), instead of being absorbed into flat black paint, is strongly reflected back to the audience from the shiny galvanized roof structure, leading to distracting double images and reflections that students focus on, instead of the educational content being projected.
- 2 The architect and contractor provided no ladder or catwalk access behind the dome, so there is no easy way to get behind and above the dome to paint the shiny galvanized roof surfaces flat black or to do maintenance work. This is unheard of in a planetarium. All other planetaria have access behind the dome surface.
- 3 The architect and contractor designed and installed the HVAC system backward in the planetarium. In a planetarium air should flow from behind the dome through the dome perforations toward the audience. This is so dust and dirt will collect on the back surface of the dome, and not on the front projection surface facing the audience

Inter-Level/ VP Level Group NEW

Decision:

Fiscal Year: 2010 - 2011

Duration: Both (i.e., initial & maintenance costs)

Estimated Cost: 150000.0000

Type of Resource Facilities

Requested:

Justification for Resource Improve delivery of educational content to students. All educational content in the planetarium is projected onto the hemispherical dome, which is designed as a projection surface. There is no separate projection screen or whiteboard in D326, and because of the layout of the seating and room, it would not be possible to have them.

During normal astronomy class activities, a standard definition Epson projector or a high definition Panasonic projector project images onto the front of the dome toward which students face. Light that leaks through the perforations in the dome from the projected images is strongly reflected back to the audience from the shiny galvanized roof structure, leading to distracting double images and reflections that students focus on, instead of the educational content being projected.

Department Code: 190100 Physical Science

Requested Funding Source: Capital Outlay

Goal: Associate in Science

Increase the number of Associate in Science degrees awarded to our students.

Year: 2011 - 2012

Start Date: 10/01/2010

Goal Status: In Progress

Goal Priority: High

Rationale: New legislation which guarantees that CC students with an Associate degree a spot in the CSU system, when they apply to transfer, makes it advantageous for our students to complete the requirements and apply for the Associate in Science degree. This is especially important, since many of our students want to transfer into an "impacted" area.

Strategies: All instructors will inform their students about the importance of completing the requirements for the AS degree. Many of our students complete all of the course work to qualify for the AS degree, but do not apply for the degree, because in the past the degree did not offer any "rewards" but required an extra layer of paperwork.

Responsible Parties: All Physical Science Faculty

Campus supported by this Both

goal:

Specify if goal is for Department/ Program
department or sub-area:

Level of Support Needed: Department

Goal: Laboratory/field trip

Maintain and update our laboratories and equipment to match the types of experiments and field experiences the 4 year schools provide for their lower division students.

Year: 2009 - 2010

2010 - 2011

2011 - 2012

Start Date: 10/01/2010

Goal Status: In Progress

Goal Priority: High

Rationale: Modern equipment and updated experiments utilizing the equipment means that our transfer students will not be at a disadvantage at the next level of their studies.

Strategies: Purchase appropriate new equipment and maintain our older equipment in good working order.

Responsible Parties: ALL

Campus supported by this LAC

goal:

Specify if goal is for Department/ Program
department or sub-area:

Name of sub-area, if Astronomy, Chemistry, Geology, Physics
applicable:

Other Area impacted by this Other

goal:

Other Area(s) impacted by facilities, ACIT

this goal:

Level of Support Needed: School or VP

Related Resources Needed

* Resources Needed Name: Repairs - Geology museum

Resources Needed Upgrade geology museum for student use

Description: Install controlled access lock (equipment)
Repair broken specimen cases/locks(facilities)

Inter-Level/ VP Level Group Not Approved

Decision:

Fiscal Year: 2010 - 2011

Duration: One-time

Estimated Cost: 2500.0000

Type of Resource: Other

Requested:

Justification for Resource: Allow geology students access to various rocks, minerals and other specimens for independent study.

Request:

Department Code: 190100 Physical Science

Requested Funding Source: Capital Outlay

* Resources Needed Name: DigiStar service contract

Resources Needed: This item should be a budget category with automatic annual payments (adjusted for inflation) directly from the

Description: general fund.

Inter-Level/ VP Level Group: Approved & Funded

Decision:

Fiscal Year: 2012 - 2013

Duration: On-going

Estimated Cost: 2000.0000

Type of Resource: Equipment

Requested:

Justification for Resource: The maintenance contract for the Digistar 3 Planetarium projection system needs to be annually renewed

Request: (\$2,000 (estimated cost for next year.). If we don't have the contract, a simple failure of a system component could easily cost more than \$2,000 to replace. The maintenance contract provides fast part replacement, telephone and email support, and free software updates to latest software version. Everything is covered except for projector lamp replacement, which will be handled by media services. Since we don't have a badly needed planetarium technician, this contract is crucial to keeping the planetarium operating while using faculty to maintain it. If the system breaks down and can't be fixed, over 500 students would be immediately impacted with the corresponding cancellation of classes

Department Code: 190100 Physical Science

Requested Funding Source: General Fund

* Resources Needed Name: field communications - Geology

Resources Needed: Field trip accessories

Description: 4 GPS units or netbooks
8 communication devices
Heavy duty laptop for field use

Inter-Level/ VP Level Group: Not Approved

Decision:

Fiscal Year: 2010 - 2011

Duration: One-time

Estimated Cost: 6500.0000

Type of Resource: Equipment

Requested:

Justification for Resource: Used to maintain contact between various groups on field trips to prevent "lost" students. Laptop would be used

Request: to send map information to GPS/netbooks.

Department Code: 190100 Physical Science

Requested Funding Source: Capital Outlay

* Resources Needed Name: Geology stockroom technician

Resources Needed: Prepare demonstration materials for geology lectures. Prepare and maintain equipment and specimens for

Description: geology labs. Maintain field trip equipment and be available to assist on field trips.

Inter-Level/ VP Level Group: NEW

Decision:

Fiscal Year: 2010 - 2011

Duration: On-going

Estimated Cost: 50000.0000

Type of Resource: Personnel - Classified/ Manager

Requested:

Justification for Resource: Many of the tasks for this person are performed by personnel from the chemistry stockroom on a time available

Request: basis. As the number of classes is increased in these areas, there will be greater need for geology preparation, and less time available from the chemistry stockroom personnel.

Department Code: 190100 Physical Science

Requested Funding Source: General Fund

* Resources Needed Name: GeoRef database - Geology

Resources Needed Annual subscription to the physical science database GeoRef.

Description:

Inter-Level/ VP Level Group Not Approved

Decision:

Fiscal Year: 2010 - 2011

Duration: On-going

Estimated Cost: 2200.0000

Type of Resource Other

Requested:

Justification for Resource This subscription would enable students and faculty to do more in depth research on a particular topic.

Request:

Department Code: 190100 Physical Science

Requested Funding Source: General Fund

* Resources Needed Name: Heat loss detection - Environmental Science

Resources Needed IR camera

Description:

Inter-Level/ VP Level Group Not Approved

Decision:

Fiscal Year: 2010 - 2011

Duration: One-time

Estimated Cost: 2350.0000

Type of Resource Equipment

Requested:

Justification for Resource Use in lecture/demonstration to detect heat losses in structure.

Request:

Department Code: 190100 Physical Science

Requested Funding Source: Capital Outlay

* Resources Needed Name: microscale glassware kits - Chemistry

Resources Needed 10 sets of microscale glassware for the organic chemistry lab.

Description:

Inter-Level/ VP Level Group NEW

Decision:

Fiscal Year: 2011 - 2012

Duration: One-time

Estimated Cost: 6000.0000

Type of Resource Equipment

Requested:

Justification for Resource The organic chemistry laboratory was originally set up to accommodate 24 students and 24 sets of glassware

Request: were originally purchased. However, the maximum enrollment for the class was set for 36. In recent semesters as many as 36 students have been enrolling. This means 10 students do not have the equipment needed to perform experiments.

Department Code: 190100 Physical Science

Requested Funding Source: Capital Outlay

* Resources Needed Name: NMR repair - Chemistry

Resources Needed NMR repair (ultimate solution)

Description:

Inter-Level/ VP Level Group Not Approved

Decision:

Fiscal Year: 2010 - 2011

Duration: One-time

Estimated Cost: 80000.0000

Type of Resource Equipment

Requested:

Justification for Resource Our NMR spectrometer was severely damaged in the move when the D building was remodeled. Repair

Request: estimates were \$75000 or higher 2 years ago.

Department Code: 190100 Physical Science

Requested Funding Source: Capital Outlay

* Resources Needed Name: NMR software - Chemistry

Resources Needed NMR software (immediate solution)

Description:**Inter-Level/ VP Level Group** Not Approved**Decision:****Fiscal Year:** 2010 - 2011**Duration:** One-time**Estimated Cost:** 3000.0000**Type of Resource** Software**Requested:****Justification for Resource** NMR is an important analytical tool in the organic chemistry lab. Software generation of spectra is less**Request:** expensive than the NMR repair.**Department Code:** 190100 Physical Science**Requested Funding Source:** Capital Outlay

* Resources Needed Name: Observatory NEW (Ultimate solution)

Resources Needed The rooftop observatory is used for viewing the actual stars, moons, and planets in the sky, as opposed to viewing**Description:** projected images in the planetarium. The students taking our astronomy lab class learn to use telescopes to find and view celestial objects. On a monthly basis C. Seligman (Professor Emeritus) voluntarily presents open houses for the general public utilizing both the observatory and planetarium.

Roof observatory proposal ? Building D

Purpose of the proposal:

To provide a permanent observatory to house the 14-inch Celestron telescope currently in the physics stockroom, plus 2-3 additional 8-inch Celestron telescopes currently housed in the department. This telescope would be used by astronomy classes to observe the night sky and to learn about the moon, the solar system, and deep sky objects. Although we currently have telescopes in the department, it can take from half an hour to an hour to take them up on the roof, set them up, and align them. Since the alignment cannot be done until the sky is dark, precious classroom time must be used to get a telescope ready to be used. A permanent, pier-mounted telescope and 2-3 additional telescopes in a dedicated observatory would only have to be aligned once and would allow a class to go up on the roof to observe with a minimal amount of time spent in setting it up.

The best observatory would be rectangular with a roll-off roof. An example is the CJE2, found at

<http://www.backyardobservatories.com/observatories.htm>

This proposal is for a 15? x 30? rectangular observatory with a roll-off roof.

The facility will be used for the following.

- 1) ASTR 1L classes in the evening.
- 2) Regular sessions for ASTR 1 classes, both daytime and evening.
- 3) Daytime viewing of the sun, using appropriate filtration.
- 4) Public viewing as part of open houses and planetarium shows.

The following would need to be done to rebuild the observatory on the roof.

- 1) Demolish the current observatory dome.
- 2) Construct a 15? x 30? concrete pad for the observatory (as specified below), either adding to or replacing the current pad. The current circular pad is about 12? in diameter. The new pad should begin at the current observatory location and be extended 30 feet to the north. The pad must be constructed with a wheelchair ramp in the middle of the west-facing side.
- 3) Build a pier on which to mount the 14-inch Celestron. The pier should be mounted in the center of the short dimension of the observatory and ten feet from the south-facing wall.
- 4) Purchase and install or build a roll-off roof observatory according to applicable building codes, as follows:
 - ? 15? x 30? in size
 - ? Mounted on a concrete pad, as specified above

- ? Long dimension oriented north/south
- ? Entrance in the middle of the west-facing side
- ? Entrance large enough to accommodate a wheelchair
- ? Roll-off roof, roll off to the east, toward the chemistry lab exhaust fans
- ? Ensure that the pad dampens the vibrations from the equipment on the roof
- ? Height of the walls should be five or six feet, depending on the heights of the pier

5) Construct or purchase and install storage cabinets along the north wall.

6) Install and align the telescope.

The following are the needs of the observatory.

- 1) Completely and permanently weatherproof.
- 2) Insulated from the daytime heat of the sun and climate controlled either by tying it into the building air conditioning or giving it its own air conditioning unit to keep the telescope electronics from overheating during the day. We do not anticipate the need for a heater.
- 3) The roll-off roof should roll off to the east of the observatory.
- 4) The central pier must be isolated from the vibrations produced by the rooftop equipment.
- 5) The pathway from the stairs and from the roof elevator should be evaluated to make sure they can stand up to what is certain to be increased traffic.
- 6) Noise abatement from the rooftop equipment wo

Inter-Level/ VP Level Group Not Approved

Decision:

Fiscal Year: 2012 - 2013

Duration: Both (i.e., initial & maintenance costs)

Estimated Cost: 200000.0000

Type of Resource Facilities

Requested:

Justification for Resource There are safety and access problems with our rooftop observatory, which must be addressed. Building an

Request: entirely new structure will eliminate the safety and access problems with our current rooftop observatory. We need to ensure adequate access for handicapped individuals and adequate safety for all individuals.

Department Code: 190100 Physical Science

Requested Funding Source: Grants

* Resources Needed Name: Planetarium technician

Resources Needed The person doing this would maintain and backup the computerized projection system, install new software

Description: updates from Evans and Sutherland, troubleshoot and fix software and hardware problems, document procedures and fixes, develop and program scripts of appropriate educational astronomical content for use in LBCC astronomy classes (and to be re-purposed for public and K-12 shows), train faculty in use and operation of the system, provide content for public shows presented by others (and present such shows as needed), maintain and update the planetarium website, publicize the planetarium, work with the Grants office for funding of special projects, and explore offering K-12 shows.

Inter-Level/ VP Level Group Not Approved

Decision:

Fiscal Year: 2010 - 2011

Duration: On-going

Estimated Cost: 50000.0000

Type of Resource Personnel - Classified/ Manager

Requested:

Justification for Resource After first installing and then operating the planetarium projection and sound system for more than a year, and

Request: discussing the issue with other college and non-college planetaria staff, we have a very good idea of staffing needs. Currently we have no staffing, and the planetarium has been designed by and made operational totally by donated time of faculty. This is a crucial need, and if not met, when something fails in the planetarium, the planetarium will simply become and remain unusable. It would be unlikely that future astronomy instructors would have the same dedication to maintaining the equipment as that of our current staff.

Department Code: 190100 Physical Science

Requested Funding Source: General Fund

Goal: basic reading skills

Work with the Course Evaluation Subcommittee to implement a Reading recommended preparation for our general education science courses, ie., Astronomy, Environmental Science, Geology, Physical Geography. We will discuss with the Reading Department which courses would be appropriate to assign as the Recommended Prerequisite.

Year: 2011 - 2012

Start Date: 08/12/2011

End Date: 05/31/2013

Goal Status: NEW

Goal Priority: High

Rationale: Improved reading ability should lead to an increase of the student success rate in these courses.

Strategies: Set up programs with the Reading Department

Responsible Parties: J. Tomson, D. Britton, N. Hancock, K. Hatch, D. Sholle

Campus supported by this Both

goal:

Specify if goal is for Department/ Program

department or sub-area:

Other Area impacted by this Other

goal:

Level of Support Needed: Department

Goal: new courses

We would like to develop new lecture courses that are more in-depth, and the corresponding lab classes. Tentatively, ASTR 5 would cover Solar System Astronomy, and ASTR 6 would cover Stellar Astronomy; and ASTR 5L and 6L would complement each of the one-semester classes, respectively. (Alternatively, ASTR 7L could serve as a joint lab for both ASTR 5 and ASTR 6.)

Year: 2011 - 2012

Goal Status: In Progress

Goal Priority: Low

Rationale: The grant application that ultimately funded the the planetarium completion including seating, Digistar projector, and associated computers stated that we would be adding additional courses to the astronomy curriculum. Curreently the only full time faculty in astronomy. Currently the only full time faculty instructor in astronomy teaches a full time and the maximum overtime load teaching ASTR 1. In addition he voluntarily maintains the planetarium equipment. This is not part of the job description for astronomy faculty. In the past we had 2 full time

instructors teaching a combined total of about 44 TU, which is almost the load of three full time faculty (45 TU).

We have enough enrollment demand to add additional ASTR classes. It is not practical to meet the ASTR 1 enrollment demand with adjunct faculty since adjunct faculty could not be expected to spend the substantial time and effort needed to learn to properly use the planetarium projection system for classroom presentations, and it is extremely unlikely that we will find adjunct faculty that already know how to use and program our system. The only practical solution is to hire at least one full time faculty who would learn how to use and program the system.

Strategies: Hire one or more new full time astronomy instructors who would have time to develop new courses and present programs for the community which obviuosly appreciates them, based on attendance at Professor Seligman's open houses and the comments by the participants.

Responsible Parties: Astronomy faculty

Campus supported by this LAC

goal:

Specify if goal is for Department/ Program

department or sub-area:

Name of sub-area, if Astronomy

applicable:

Level of Support Needed: Department

Related Resources Needed

* Resources Needed Name: Hire additional astronomy instructors

Inter-Level/ VP Level Group NEW for Fiscal Yr 2011-2012

Decision:

Fiscal Year: 2011 - 2012

Duration: On-going

Estimated Cost: 85000.0000

Type of Resource Personnel

Requested:

Justification for Resource The grant application that ultimately funded the the planetarium conmpletion including seating, Digistar

Request: projector, and associated computers stated that we would be adding additional courses to the astronomy curriculum. Currently the only full time faculty in astronomy. Currently the only full time faculty instructor in astronomy teaches a full time and the maximum overtime load teaching ASTR 1. In addition he voluntarily maintains the planetarium equipment. This is not part of the job description for astronomy faculty. In the past we had 2 full time instructors teaching a combined total of about 44 TU, which is almost the load of three full time faculty (45 TU). We have enough enrollment demand to add additional ASTR classes. It is not practical to meet the ASTR 1 enrollment demand with adjunct faculty since adjunct faculty could not be expected to spend the substantial time and effort needed to learn to properly use the planetarium projection system for classroom presentations, and it is extremely unlikely that we will find adjunct faculty that already know how to use and program our system. The only practical solution is to hire at least one full time faculty who would learn how to use and program the system.

Department Code: 190100 Physical Science

Requested Funding Source: General Fund