INSTRUCTIONAL PROGRAMS AND AREAS
PROGRAM REVIEW / PLANNING AND EVALUATION PROCESS

QUESTIONNAIRE FOR INSTRUCTIONAL PROGRAMS

INSTRUCTIONS:

Complete all sections as instructed. Click the shaded sections to type your answer.
When completed, please save your file and e-mail it as an attachment to tanya_hanton@westvalley.edu.

A. INTRODUCTORY QUESTIONS

1. Program Name: ***Physical Sciences (Astronomy, Geology, Oceanography, Physics)***

2. Person(s) completing the questionnaire: *Dr. Robert Lopez*

3. Date of completion: *11/27/2207*

4. What are the primary purposes of the program? Check all that apply.

- ☒ WVC Degrees and Certificates
- ☒ Transfer Courses
- ☒ WVC General Education
- ☒ Lifelong Learning/Life Enrichment
- ☒ Occupational / Vocational Courses
- ☐ Student Support Services
- ☐ Academic Support Services
- ☐ Administrative Functions

5. In one paragraph, how does the program further the College's mission and goals? (only new information need be added)

The physical science department fulfills several of the missions and goals of West Valley College. All the physical science courses are (1) fully transferable to UC/CSU and other colleges/universities. Our department prepares students for college level courses in terms of scientific literacy, critical thinking, organization, and communication; (2) some of our courses are instrumental for vocational programs like Park Management; (3) we also offer a basic problem solving pre-physics course;(4) all of the physical science courses can be used to fulfill general education science requirements, while several are specifically geared to fulfill this need (Astro 10,11,10L,11L - Geol 1A, 1B, 15, 3B - Physics 1, 10 - PSci 10, 20, 30 - Oceanography 10).

6. In one paragraph, what significant events have affected or impacted the program since the last program review?

The Physical Sciences Department has benefited from recent College-wide funding for equipment and modernization. We have modernized our lab rooms and added vital equipment (new microscopes, physical sensors, LCD projectors, one classroom computer per lab room, globes, and telescopes). Land Corp funding has allowed us to upgrade the computer in the planetarium and pursue replacement seats, as well. Robert Lopez is now the Department Chair.

Although the once separate departments of Astronomy, Geology, Oceanography, Physical Science and Physics have been combined, we are still operating with five different budgets. Our request to combine our budgets has not been implemented. The new alignment has also yet to be recognized in PGC.

Discovery of hazardous materials in the Physical Science stockroom and the District's delay in its cleanup of the affected areas have created an atmosphere of anxiety among the Physical Science faculty. The cleanup has occurred, but employees are still awaiting notification as to their risk exposure and training to properly handle hazardous materials.

Budgets were cut some time ago and the program remains under-funded. Some augmentation funds were received for Fall 2007, but no permanent change in the budget has been made. The program feels handicapped in its ability to provide the high-tech instructional experience that is expected due to inadequate resources.

Increasing conflict over finite classroom facilities and lack of adequate technological upgrades have held back the ability of the department to increase its offerings, increase WSCH, and provide a high quality, safe learning environment.

Some of these issues may be partially alleviated by the planned remodel of existing facilities. However, many questions about the remodel remain. The funding from the state for the remodel does not include enough funding for Group I and II equipment. Preliminary planning has suggested that Americans with Disabilities Act (ADA) requirements will necessitate larger lab rooms within the existing footprint. Our estimates indicate that under these conditions there will be no increase in the number of available teaching rooms and thus no ability for the department to modify/expand its offerings.

The compressed calendar continues to pressure our resources; faculty are less available for students, fewer prime time slots have created increased competition for classroom space and increased competition between department courses for students.

Faculty teaching loads continue to be an issue that has negatively affected the ability of faculty to most effectively serve students. Recently the ACE union negotiated a temporary load adjustment for lecture load to base 15. This has served to equalize the science lecture load to the campus norm and needs to be made permanent. The physical science faculty still acknowledge that the laboratory loads must also be adjusted to base 15 in order for us to allocate enough time to provide our students the same quality of education students in other disciplines enjoy (for example: faculty preparation time, availability to students, stay current on research, flexibility and variability in course offerings, etc.).

B. DATA ELEMENT ANALYSIS SECTION (ANALYSIS AND RESPONSE)

1. Using the enrollment data from Table 1 from previous program review, add or revise as appropriate.
   a) What significant trends are revealed in the data?
   b) What factors might contribute to any program differences compared to the College data?
   c) What conclusions do you draw from this analysis that could form the basis for an action, objective or request for resources?

The Physical Science Department continues to be at or better than the college wide FTEs/FTEf level.

2. Using the demographic data from Table II from previous program review, add or revise as appropriate.
   a) What significant trends are revealed in the data?
   b) What factors might contribute to any program differences compared to the College data? See attachment for college-wide statistics.
   c) What conclusions do you draw from this analysis that could form the basis for an action, objective or request for resources?

Like the college, Physical Sciences has also seen a slight increase in <21 year old students.

3. Using the success data from table III from previous program, add or revise as appropriate.
   a) What significant trends are revealed in the data?
   b) What factors might contribute to any program differences compared to the College data?
   c) What conclusions do you draw from this analysis that could form the basis for an action, objective or request for resources?

No significant change since the March 2007 program review.

4. Are there any data or factors (e.g. integration of technology; college, district, or state expectation or mandates) concerning staffing in the program, that suggest a need for increasing or decreasing program staff (e.g. permanent and associate FTE, permanent and hourly classified staffing or administrative staffing)?

Physical Sciences requested a full time technician to aid in laboratory prep, lab dismantling, clean-up, and equipment cataloguing; maintenance, repair, and lab modernization. We were granted a 53% position for which we are in the process of advancing a candidate for hire to the Board. With our new equipment, classroom modernization, and very near future building renovation, Physical Sciences requires that this classified staff position be advanced to 100%. Further, the program has several night offerings and weekend field trips. We want to advance weekend course offerings to give students more flexibility to fit their schedules. A budget for classified hourly is needed to provide support these endeavors.

C. CURRICULUM SECTION (ANALYSIS AND RESPONSE)

1. Based on your program's curriculum information, as published in the most recent West Valley College catalog, what curriculum changes are anticipated in the next three years? (These changes could include major course revisions, curriculum deletions, new courses, revised or new options within a program, or proposed new programs.)

Astronomy will request to combine their lecture and lab courses into 4-unit lecture/lab courses. Physics will change the curriculum of Physics 4D making this a 4-unit college transfer course that is more in-line with similar course offered at other colleges and universities. Geology will advance an on-line curriculum for the lecture only courses like Geology 15 and Geology 1B. Oceanography and Geology will advance field-based study lab courses.

2. The attached excel document shows classes that have not been offered since Spring 04. Please list the courses you intend to submit to the Curriculum Committee by February 8th for de-activation prior to publication of the 08/09 catalog.

Geology will submit Geology 10 and Geology 10A for de-activation.

3. Considering the new course and program level Student Learning Outcomes that have been developed since the last program review:

   a) What relevant findings have been derived through the SLO assessment process since the last program review?
   b) What changes have been implemented, or are planned, based on the findings since the last program

review?

c) What conclusions do you draw from this analysis that could form the basis for an action, objective or request for resources?

NOTE: Please contact LeAnn McGinley (741-2402), Assessment Coordinator with any questions concerning SLOs.

Physical Sciences has already published SLOs for the Physics 4 series on CurricuNet. Geology, Oceanography, and Astronomy are preparing SLOs to be included in CurricuNet by Spring 2008.

As of Fall 2007, no findings have been derived from our SLO assessment process. Physical Science faculty do note that students are responsive to the stated course objectives and seem to appreciate the stated student learning outcomes.

D. EXTERNAL INFLUENCES SECTION (ANALYSIS AND RESPONSE)

1. If applicable, considering the effects of external influences on the program's purposes and goals:

   a) How do accreditation requirements, government regulations, advisory boards, labor market demand, transfer institution articulations or other external factors affect the program?

   b) How might these influences form the basis for an action, objective, or request for resources?

In the past year and a half, our program faculty has researched the Global Warming phenomenon that is affecting our planet. We hope to be better informed so that we can confidently answer concerns from students. This is not just a physical process, but one that is strongly political. This results in our faculty attending more conferences not necessarily specific to their discipline (Physics faculty may have to attend Earth Science conferences; Earth Science faculty may have to attend meteorology and physics conferences).

E. STUDENT FACTORS SECTION (ANALYSIS AND RESPONSE)

1. What program changes or initiatives has the program implemented in the last three years to meet the needs of its student population?

Geology and Astronomy has put together an interdisciplinary field course that teaches geology during the day and astronomy night sky observation at night. Physical Science is offering its environmental course again. Oceanography has changed the lecture only curriculum into a lecture lab curriculum. The 4-unit course is transferable on the IGETC plan to four-year colleges and universities. It has become a popular course.

F. SUMMARY AND CONCLUSION SECTION:

1. General conclusions and summary statement.

Physical Science remains a dynamic discipline. With the recent global phenomena (cyclones, earthquakes, global warming, sea level changes, oil and gas price hikes) affecting our planet, students look to the physical sciences for knowledge and education about their planet. Recent funding has enabled us to provide new and innovative labs and demonstrations so that our students may benefit from visual and sometimes real-time information. Knowledge of the physical world will be a leading requirement for any career in the global community. The West Valley College Physical Sciences Department is ready for the challenge.

2. Program Strengths**:**

Fulfills transfer preparation to other colleges and universities.

Prepares students in scientific literacy, critical thinking, problem solving.

Provides a knowledge base for the community in search of answers to global phenomena.

Provides courses essential to vocational training in Park Management.

3. Program Challenges:

Funding for computer resources so that students can observe and manipulate the variables of the physical processes. Seeking permanent increase for our instructional supply and maintenance budgets.

Updating our course outlines with objectives and student learning outcomes.

Procedures for handling and storage of the hazardous materials in our work area.

Obtaining hazardous materials training and assessing level of exposure to our staff and faculty.

Time allocation to mentor and supervising our new, 53% funded Technical Lab Assistant.

Excessive workload remains unaddressed by collective bargaining.

Creating an awareness and corresponding action regarding the Science and Math building remodel having insufficient funds for equipment and facilities.

G. ACTIONS AND OBJECTIVES SECTION

Based on the foregoing analyses and findings in Sections A. through F., what are the program's intended actions or objectives for the next three years?

Continue to press the district for information regarding our health and safety due to hazardous material exposure and to provide us with training to work with hazardous materials.

Update our course outlines with assessments and SLOs.

Hire a new 53% Physical Science Lab Technician and continue to advocate making this position full-time.

Mentor and supervise the new lab technician.

Participate in the Science and Math remodel.

Acquire funding for computer laptops in our lab rooms. Seek increases in our budgets to maintain the program.

Hire more associate faculty to widen our pool as some faculty take sabbatical leave.

Timelines

Over the next three years, what are the program's timelines (in terms of predicted initiation and completion dates) for the stated actions or objectives?

We are unable to provide a timeline for completion of hazardous material training as this is a district responsibility and training requests have gone disregarded for nearly two years.

We expect to complete course outlines with assessments and SLOs for all of our courses by end of Spring 2008.

We appear to be on track to hire a part time lab technician by January 2008.

Which of these actions or objectives would be initiated and completed within the coming year, given adequate resources?

Hazardous material training for all faculty and staff.

Course Outline updates.

New Lab Technician hire.

Hire more Associate Faculty

H. RESOURCE REQUESTS 2006-2007

1. Please indicate if any of the resource requests identified in the previous program review were funded through one or more of the various WVMCCD resource allocation processes that were available in 06 – 07 (e.g. FTE allocation, classified staff, one time funding, budget augmentation, facilities, Land Corporation):

Please complete the following table (leave blank if the answer is not applicable):

	FUNDED by WVMCCD?
Full-time faculty FTE: An increase to *release time for department chair (presently .111) and release time for planetarium direction.*	☐ Yes ☒ No ☐ Partially
Associate faculty FTE: *Two of our faculty members will go on Sabbatical leave in 2008 and 2009. We will need funding to recruit and hire associate faculty.*	☐ Yes ☒ No ☐ Partially
Classified Staff FTE: *We were granted a 53% lab technician position. Our multidisciplinary labs with morning, afternoon and evening classes require a full time technician.*	☐ Yes ☐ No ☒ Partially
Classified Hourly (in dollars): *Our program requested $6000 for support of department activities including night classes, AV and lab support.*	☐ Yes ☒ No ☐ Partially
Administrative Staff FTE: *Click once here and type your response*	☐ Yes ☒ No ☐ Partially
Facilities (brief narrative description): Computer upgrade and new chairs for SM37 were funded. *Unmet needs remain: The planetarium hybrid projection system, dome and sound system continue to age and no funds have been allocated for replacement. There has been no progress for meeting the EMFP objective of locating a small observatory on campus as stated in the March 2007 program review. Allocation to SM building remodel for a coelostat/heliostat, spectrograph, seismograph, radio antenna and weather station.*	☐ Yes ☐ No ☒ Partially
Equipment (brief narrative description with estimated total cost): *We have purchased several updated lab equipment including telescopes, microscopes and computer sensors.* Unmet needs: Two sets of mobile computer carts to service physical science laboratories: $60,000. Robitics workshop: numerically controlled mill, lathe, drill press, 3-D printer, soldering station, cutters, saws, etc. $150K	☐ Yes ☐ No ☒ Partially
Supplies (brief narrative description with estimated total cost): *We received a budget augmentation for the 2007-2008 academic year. We hope this budget augmentation is permanent.*	☒ Yes ☐ No ☐ Partially
Staff Development (brief narrative description): *Click once here and type your response*	☐ Yes ☐ No ☐ Partially
Other (please specify): *The discovery of hazardous materials in our work area requires action. The physical sciences staff needs training and counseling on how to deal with these hazardous materials. This is an urgent matter.*	☐ Yes ☒ No ☐ Partially

2. What have you been able to accomplish as a result of the resource obtained?
(e.g. improved retention success and persistence, improved equity, new SLOs, higher enrollment, new online or satellite campus classes….)

NOTE: The Program Review Committee realizes that in some cases, accomplishments and changes resulting from resource acquisition are too recent to be measurable. The current Program Review process is only one year old. Future reviews of funding requests will focus on accomplishments and change occurring over a two-year period.

With the new microscopes and telescopes, each student in our classes learns first hand how to operate the instruments and gets first hand knowledge from observation. In physics, the new equipment allows for more lab set-ups and stations so that more students can be involved with the hands on data acquisition and analysis rather than copying and relying on one or two students who do the experiments.

I. RESOURCE REQUESTST 2007-2008

1. What **new or additional** resources are required to accomplish the stated actions and objectives?

Please complete the following table (leave blank if the answer is zero or none):
Full-time faculty FTE: A 0.4 release time for planetarium director, and an increase of 0.3 release time for physical science department chair.

Associate faculty FTE: *We will need to hire more associate faculty to widen our pools and to use as needed for sabbatical replacements.*

Classified Staff FTE: A 0.47 for instructional Lab Technician. *Our department will better serve our students with the aid of a full time lab technician to help faculty setup our new lab equipment and resources. Currently our lab technician allotment is 53%.*

Classified Hourly (in dollars): $6000 for support of evening classes, weekend field trips, weekend courses, grading, maintaining the rock/mineral collection, AV collection, etc.

Administrative Staff FTE: *Click once here and type your response*

Facilities (brief narrative description): *Our building remodel is on the very close horizon and we anticipate classroom and pedagogical needs to go in the new facilities. We will need funding for student computer laptops for lab analysis.*

Equipment (brief narrative description with estimated total cost): *Our most urgent need will be a bank of student computer laptops like Biology uses in their labs.* Two sets of mobile computer carts to service physical science laboratories: $60,000.

Lab equipment for modern physics (oil drop experiment, diffusion cloud chamber, geiger tubes, dewers, semi-conductor lab, super-conductivity lab, photo-electric effect, x-ray and radioactive sources and absorbers, isotope generator kit, h/e system, spares): $35,000

Supplies (brief narrative description with estimated total cost):
We hope that our budget augmentation will remain as given this past year. Our labs use many consumables, especially with the introduction of the oceanography lab. We still require an allocation of $500 for transportation and camping costs relating to field courses.

Oceanography SF Boat Cruise: Request $2800 annually. Oceanography runs a boat cruise on the San Francisco Bay through the Marine Science Institute (MSI) out of Redwood City. This field excursion in the highlight field trip for the course where students use many of the tools and concepts they have learned throughout the semester. We measure water salinity, density, plankton productivity, mud analysis, water temperature, and investigate marine ecology via a trawl net (we catch and release bay fish species). The cost of the trip is $1400.00 per semester. Currently the students pay the instructor and the instructor pays MSI, often with out-of-pocket expense to the instructor.

Geology Field Trip Bus Rental: $2000 annually. Geology 001A runs field trips to geologically diverse areas of the Coast Ranges (Pinnacles National Monument, Point Lobos Marine Reserve, Point Reyes National Seashore, Golden Gate National Recreation Area, Yosemite National Park). De Anza College and Foothill College use charter bus service for their geology field trips.

Replacement of ceiling tiles and new paint in rooms SM47, SM47A, AND SM40. Lexan to allow posting and protection of history of physics wall sequence in the lecture room: $1000

The planetarium needs to be brought up to modern standards: estimate of $990K (non-inclusive of building costs) for hybrid digital/optical projector system, dome, and sound system (note: College of San Mateo and DeAnza College have opened their upgraded facilities this past semester).

Staff Development (brief narrative description): *Allocation of funds for conferences on global warming, fossil fuels, atmospheric processes, and climate change.*

Other: *We are in need of counseling and proper training in Hazardous Materials. Our staff is concerned about*

exposure and on methods of discarding/storing these hazardous materials.

Classroom space: Physical science needs an additional lecture room and a laboratory room. Astronomy has never had a dedicated lab space. Further, the compressed calendar created time and room conflicts with other lectures and especially labs for room space.

Work Load Realignment: Under the compressed calendar of 16 weeks per semester, the faculty now teach longer lectures followed by longer labs. With the base 18 loading of labs and the comprseed calendar, faculty are less available for students and this has also limited and weakened the department's involvement in important college matters.

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