Cañada College

ANNUAL PROGRAM PLAN & REVIEW (INSTRUCTIONAL)
ASGC ADOPTED SPRING 2011

The purpose of this document is to collect information to be used by the college planning bodies IPC (Instruction Planning Council), APC (Administrative Planning Council), SSPC (Student Services Planning Council), Budget Planning Committee, and CPC (College Planning Council) and may be used for Program Improvement and Viability (PIV). Through this process, faculty have the opportunity to review the mission and vision of their department/program. Then, using multiple measures and inquiry, faculty will reflect on and evaluate their work for the purposes of improving student learning and program effectiveness. This reflection will identify steps and resources necessary to work towards the program vision including personnel, professional development, facilities, and equipment. *Faculty should use their judgment in selecting the appropriate level of detail when completing this document.*

The deadline for submission of the Annual Program Plan to the IPC is March 31. Complete this document in consultation with your Dean who will then submit a copy to IPC. Members of the IPC review the document and return their comments to the author for use in the next annual program plan.

Cañada College

Mission Statement

It is the mission of Cañada College to ensure that students from diverse backgrounds have the opportunity to achieve their educational goals by providing quality instruction in general, transfer, career, and basic skills education, and activities that foster students' personal development and academic success. Cañada College places a high priority on supportive faculty/staff/student teaching and learning relationships, responsive support services, and a co-curricular environment that contributes to personal growth and success for students. The College is committed to the students and the community to fulfill this mission.

Vision

Cañada College ensures student success through personalized, flexible, and innovative instruction. The College infuses essential skills and competencies throughout the curriculum and assesses student learning and institutional effectiveness to make continuous improvement. Cañada responds to the changing needs of the people it serves by being involved in and responsive to the community, developing new programs and partnerships and incorporating new technologies and methodologies into its programs and services.

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Document Map:

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Department/Program Title:
Earth Science (Geology, Oceanography, Meteorology and Environment Science)

Date submitted: April 29, 2013

0. Key Findings:
The Earth Science program continues to grow. Currently the program primarily serves general education students pursuing transfer. We anticipate the number of students pursuing department majors will grow, especially with the addition of the Environmental Science AS-T.

The addition of a new full-time faculty member will improve organization and accountability within the department. However, it will take a couple semesters for the new faculty member to get up-to-speed with assessment and reporting requirements.

Our current lab equipment and supplies are in need of inventorying and, in some cases, replacement. For example, many of our geology lab mineral and rock and samples are in poor shape after many many semesters of student use. Further, as pedagogy has changed over time, our lecture and lab classes are in need of more equipment for students to use (e.g. globes, maps, etc…)

1. Planning Group (include PT& FT faculty, staff, stakeholders)
List of names and positions:
Susan Mahoney – FT
Kim Kirchoff-Stein – PT

2. Writing Team and Contact Person: Susan Mahoney

3. Program Information

A. Program Personnel
Identify all personnel (faculty, classified, volunteers, and student workers) in the program:

FT Faculty: Susan Mahoney
PT Faculty: Kim Kirchoff-Stein
Bridget James

B. Program mission and vision
The Earth Sciences department endeavors to prepare students for successful transfer to 4-year institutions, to provide the prerequisite earth science foundation for further study in earth science fields, to foster critical thinking and active learning, and to fulfill the needs and interests of students by having a well rounded curriculum of lecture and laboratories.

C. Expected Program Student Learning Outcomes

1. The Scientific Method:
   Students completing this program will be able to use the scientific method and appreciate its importance to the development of scientific thought.
   Assessment Tools: Questions on Exam #1 in GEOL 100 and OCEN 100

2. Effective communications and documentation of work:
   Students completing this program will demonstrate the ability to document and communicate their work effectively.
   Assessment: GEOL 101 fieldtrip report and lab exercises, OCEN 101 lab exercises

3. Critical thinking and analysis of physical systems:
   Students completing this program will demonstrate critical thinking and the ability to analyze physical systems in terms of scientific concepts.
   Assessment: GEOL 100 Final exam and questions on second midterm in OCEN 100.

4. Response to Previous Annual Program Plan & Review

The Comprehensive Program Review for the Physical Sciences, including Earth Science, was completed in Spring 2012. There were no recommendations or review for Earth Science noted in that review.

5. Curricular Offerings *(current state of curriculum and SLOAC)*

Course Prefix	Course Number	Course Title	Date of last revision	SLO Cycle completed *
GEOL	100	Introduction to Geology	5/19/10	12/16/11
GEOL	101	Geology Lab	5/20/10	12/16/11
OCEN	100	Oceanography	2/24/12	12/16/11
OCEN	101	Oceanography Lab	2/24/12	
METE	100	Meteorology – Weather Processes	5/19/10	
ENVS	115	Introduction to Environmental Science	3/12	

The OCEN 101 SLO Cycle will be complete Fall 2013. ENVS 115 was a new course Spring 2013. We found there was no data on TracDat for METE 100. We will address this is Summer 2013.

No courses have course outlines over 6 years old. With the addition of a new lead full-time faculty member, the department plans to review/revise the Geology, Oceanography, and Meteorology courses in the 2012-2013 academic year.

A. Attach the following TracDat and Curriculum data in the appendix:

- TracDat report attached.

B. Identify Patterns of Curriculum Offerings

Current Active Courses:

- GEOL 100 – 3 units
- GEOL 101 – 1 unit
- OCEN 100 – 3 units
- OCEN 101 – 1 unit
- METE 100 – 3 units
- ENVS 115 – 3 units

The current plan is to offer at least one on-campus section each of OCEN 100, OCEN 101, GEOL 100, GEOL 101, and ENVS 115 each semester and one on-line section each of OCEN 100 and METE 100.

Future plans include:

- Develop an Environmental Science AS-T degree after the state approves the TMC.
- Offer an online section of ENVS 115. We project increased demand for ENVS 115 after UC/CSU GE approval and after the development of the AS-T Environmental Science major.
- Develop a lab course for environmental science to go with the lecture course.
- Consider adding a lab course for meteorology to go with the lecture course (METE 101). Discussions are on-going whether this lab course could be on-line. If so, it would be the only on-line lab course available for our students who need a GE lab.
- Consider adding a lab course for GEOG 100 to go with the lecture course (GEOG 100).
- Consider developing a historical geology class required to meet the TMC for the AS-T Geology degree.

6. Program Level Data

A. Data Packets and Analysis from the Office of Planning, Research & Student Success and any other relevant data.

Total enrollment and enrollment per section in this department continue to grow. Load is still slightly below the college average, but is continuing to increase steadily. Success and retention in these general education courses remain high. Ethnicity and age distribution are reflective of the college overall. A new full-time faculty member started in Fall 2012.

B. Analyze evidence of Program performance. Explain how other information may impact Program (examples are business and employment needs, new technology, new transfer requirements)

While compiling this report, it was noted that no program level assessment data has been input into TracDat. This is a high priority for the department.

Students enrolled in Earth Science programs are primarily general education students preparing for transfer. Career opportunities in Earth Science and Environmental Science continue to increase higher than the national average, so we anticipate an increase in the number of students pursuing an Earth Science degree. Additionally, we anticipate increased enrollment once the Environmental Science AS-T is approved.

7. Action Plan

- The department plans a full review of all course outlines to ensure that SLOs are up to date and appropriate. This is especially important as various college programs will be using our courses in their newly-developed transfer degrees.
- The full-time faculty member will review all assessment reports, to ensure that all courses have assessment plans and are on track to complete assessment cycles on time. For example, currently there is no data in TracDat for METE 100.
- As needed, the department will modify assessment plans and ensure that faculty are using the data to improve their courses.
- The department will review PLOs. The original PLOs were adopted from the Physical Science Department. We may keep them as is or slightly modify them to note and Earth Science focus.
- The full-time faculty member will ensure that PLO assessment is completed and tracked through TracDat.
- When the state approves the Environmental Science TMC, we will develop an AS-T degree. (Notably, Susan Mahoney sits on the state-wide committee, so we hope to be among the first colleges to get our Environmental Science AS-T up and running.)
- Interested department faculty will meet to discuss the possibility of a Geology AS-T.
- Interested departmental faculty will meet to discuss ideas for increasing enrollment and retention of current students, as well as recruitment of Earth Science and Environmental Science majors.
- Interested departmental faculty will meet to identify community partners (e.g. high schools, local, state, and federal agencies, non-profits, etc…) for program planning and also fieldtrip and internship opportunities.
- Geology and oceanography faculty will work to organize and update our lab equipment and supplies. For example, we will reorganize our mineral and rock collections into student kits. Allowing students to easily study all minerals or all of a specific rock type at once. We anticipate this will improve student learning of rock and mineral identification.

8. Resource Identification

A. Faculty and Staff hiring requests: No additional staff or faculty are requested.

B. Professional Development needs
Professional development is essential to keep current in the discipline and to keep current with effective pedagogy and assessment methods. For the new full-time faculty member (Susan Mahoney), time is currently the major constraint limiting the identification and participation in professional development activities. Among other activities, Susan plans to attend the National Association of Geoscience Teachers- Far Western Region Field Conference in August 2013. This fall, the conference will be in the Bay Area and focusses both on local geology and pedagogy appropriate for community college-level courses.

C. Classroom & Instructional Equipment requests
Note: #1 - #8 are in order of preference. The remaining items (#9 - #13) are of lesser priority.

1. **Classroom Wall Map:** Rand McNally Advanced Physical/Political 3-Map Combo; Spring Loaded Environmental Science, Geography, Geology, Oceanography, and Meteorology classes all need one large physical/political world map and one large United States map. Ideally, we would like a spring-loaded pull-down map, so that it can be used and removed several times during a lecture and the white board space is not covered permanently. It's most economical to buy these maps together.

   Rand McNally #0528005723 $310 each
   Total Cost: $310

2. **Rock and Mineral Samples for GEOL 101 Student Kits:**
   1-10 samples each of approximately 15 minerals and 15 rocks to improve our existing kits. Many of the current samples are very old and have detonated. Additionally, we would like to add other important samples to the existing collection. Further we are trying to develop 10 "kits" each for minerals, igneous rocks, sedimentary rocks, and metamorphic rocks, so that pairs or small groups of students can examine all the mineral or rock samples at once.

   Vendors will vary depending on where we get the best samples. Cost per unit varies considerably depending on the mineral or rock. The cost listed below is an estimate, assuming we get small student samples at approximately $12/set of 10. In some cases we need 10 samples, in some cases we need less.

   Total Cost: $350

3. **Classroom Globe:** Cram (brand) 12" plastic political/physical globe in swing meridian mounting. The current globe available for classroom use is one we borrow from Astronomy. It is made of laminated fiberboard and is deteriorating after a few semesters of use. Environmental Science, Geography, Geology, Oceanography, and Meteorology classes need one plastic meridian- mounted globe.

   GeoSmile.com # 100063971
   Total Cost: $139

4. **Student Globes:** Inflatable Topographic World Globe; 12 inch
   Ideally we would have a classroom set of plastic globes (unmounted) for use in Geography, Geology, Oceanography, and Meteorology classes. Instead, we are requesting inflatable globes that we believe we will be able to use effectively. If they are effective, we will likely order more in the future.

   Wards Scientific: #805675 5 globes (8.95 Each)
   Total Cost: $44.75

5. **Trays to be used as Wave Tanks:** 24" x 36" UltraTech Ultra-Utility Trays® Containment Trays
   The tanks currently used for OCEN 101 leak and are nearing the end of their life. We have been using plastic-bag-lined cardboard boxes for tanks. For a longer-lasting (and better) alternative we have found plastic trays that will be effective.

   Ben Meadows (http://www.benmeadows.com)
   Item # 135521 3 tanks ($69.30 each)
   Total Cost: $207.90

6. **Philips Projection Lamp**
   We have viewing scopes, but the bulbs are burned out. Primarily used for OCEN 101 plankton viewing, but may be used for GEOL 101.

   Barber Optics (http://www.barberoptics.com/Bulbs.html)
   Item 13529 (6v 9w GZ4) 3 bulbs
   Total Cost: $90.00

7. **Compact Scale, 2000 g x 1 g**
   For use with in OCEN 101 and GEOL 101. In the past we have borrowed scales from Chemistry. Sometimes that is not possible due to scheduling.

   Wards Scientific
   VWR Compact Scale, 2000 g x 1g
   Item # 156304 2 scales ($98.00 each)
   Total Cost: $198.00

8. **Compass Protractor:** For use in OCEN 101. Multiple lab activities.
   Wards Scientific
   Item # 154715 12 protractors ($2.15 each)
   Total Cost: $25.80

9. **LaMotte Plankton Net:** For OCEN 100 and OCEN 101.
   Ben Meadows (http://www.benmeadows.com)
   Item #:224225 Mfr. Model #:1063 $82.20
   Total Cost: $82.20

10. **Chloride/Salinity Test Kit:** For OCEN 100 and OCEN 101.
    Ben Meadows (http://www.benmeadows.com): LaMotte Chloride / Salinity Test Kit, Pkg. of 50 Tests
    Item #:221784 Mfr. Model #:4503-DR-02 Price $45.80
    Total Cost: $45.80

11. **Water pH Test Kit:** For OCEN 100 and OCEN 101.
    Ben Meadows (http://www.benmeadows.com)
    HACH® Single-Parameter Acidity Titration Drop-Count Test Kit, 100 Tests
    Item #:100820 Mfr. Model #:2223-33 Price $38.60
    Total Cost: $38.00

12. **Digital Barometer:** For OCEN 100 and OCEN 101.
    Wards Scientific: Traceable™ Workstation Digital Barometer
    item # 231201 $36.95
    Total Cost: $36.95

13. **Waves Demonstrator:** For OCEN 100 and OCEN 101.
    Wards Scientific: Water Waves Ripple Tank Demonstrator
    item #800175 $98.00
    Total Cost: $98.00

D. Office of Planning, Research & Student Success requests

We would like to be able to identify student who are interested in pursuing a major in Earth Science or Environmental Science and/or students who are interested in career fields related to these majors.

E. Facilities requests

As a temporary measure, the basement of building 16 was renovated into a classroom / lab space for earth science (shared with physics and physiology). This moved earth science out of the chemistry labs, which was a good thing. The problem is that the room in building 16 only holds 24 students comfortably – limiting the size of the class and reducing possible load calculations. In addition, this space was only designed to be a temporary space until a new lab could be designed for the earth science program in a new science building.