General Education Annual Course Assessment Form

Course Number/Title: COMM/ENVS/GEOL/HUM/METR 168/168W: Global Climate Change I & II

GE Area: SJSU STUDIES R.S.V.Z

Results reported for AY: 2012-2013

# of sections: 1

# of instructors: 3

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Department Chair: Dr. Stephanie Coopman  College: College of Social Sciences

Instructions:

Each year, the department will prepare a brief (two page maximum) report that documents the assessment of the course during the year. This report will be electronically submitted, by the department chair, to the Office of Undergraduate Studies, with an electronic copy to the home college by September 1 of the following academic year.

Part 1

To be completed by the course coordinator:

(1) What SLO(s) were assessed for the course during the AY?

AREA R2: Students will be able to distinguish science from pseudo-science.

AREA R3: Students will be able to apply a scientific approach to answer questions about the earth and environment.

AREA V2: Students shall be able to identify the historical context of ideas and cultural traditions outside the U.S. and how they have influenced American culture.

AREA V3: Students shall be able to explain how a culture outside the U.S. has changed in response to internal and external pressures.

(2) What were the results of the assessment of this course? What were the lessons learned from the assessment?

In this interdisciplinary course, we have worked to develop an assessment plan to account for the rotation of instructors with different specializations across fields, and the integrated nature of the course curriculum. Because this course has fourteen (14) learning objectives, we have developed ways to streamline assessment, looking at assignments that meet multiple learning objectives. In previous assessment cycles we identified the need to establish parameters for common assignments, assigned each year regardless of instructor changes. This year we dealt with the challenge of only a single veteran instructor with two new instructors coming on-board, and the standardization of assignments was very helpful. We worked this year to further refine assignments that allowed us to assess multiple learning objectives. In doing so, we hope to establish common assignment that ensure continuity of assessment across multiple sections and multiple instructors. This year, we focused on exams as the primary method for assessment of these learning objectives.

AREAS R2 & R3:

Midterm & Final Exams: Students take five (5) exams in this course. Exams are a combination of multiple choice and short answer. Areas R2 & R3 are addressed by short answer questions, which students answer in 4-6 sentences. A few examples of these questions:

- What would be your argument if your Uncle Steve told you: “Hey, this Global Warming thing is baloney, the weather is always changing anyway, it’s been hotter before, and we’re too small to have any impact on the climate!” (Area R2)
• Your colleague dismisses concerns about increasing greenhouse gases and states confidently that variations in the sun are much more important to current climate change then increases in greenhouse gases. Respond to this statement using information from the radiative forcing diagram (Fig. 1) and include numbers in your response. (Area R2)

• Please draw the carbon cycle, indicating photosynthesis and respiration fluxes. Indicate which fluxes are affected by deforestation and subsequent agriculture conversion. (Area R2)

Assessment Activities & Outcome:

Due to the integrated nature of the course, the Fall curriculum is the most science-intensive: students must understand the complexities of climate science climate science before applying these concepts. We use midterm and final exams to evaluate students’ scientific knowledge articulated under SLOs R2 and R3. The exams of both semesters are cumulative, and so provide a rich data set that demonstrates whether students are able to synthesize scientific concepts.

Instructors evaluated four relevant short answer sections of the second midterm and the final of the Fall semester (four sections of 180 exams—90 students). We also evaluated the relevant short answer sections of the midterm and final exams of the Spring semester (four sections of 168 exams—84 students). *Six students did not earn a C or better in the Fall semester, and so did not continue in the Spring semester.* We used the baseline of 73% as the minimum standard, since a grade of C is required to receive GE credit in the course. We used 80%-89% to signify a B range, and a score of greater than 90% as an A range.

Fall Midterm Section 1
70/90 students met the minimum standard of 73%. 31 students scored in the B range (80%-89%) and 25 students scored in the A range (above 90%).

Fall Midterm Section 2
35/90 students met the minimum standard, 21 students scored in the B range. 5 students scored in the A range.

Fall Final Section 1
77/90 students met the minimum standard of 73%. 39 students scored in the B range and 26 students scored in the A range.

Fall Final Section 2
65/91 students met the minimum standard of 73%. 42 students scored a B, and 9 earned an A.

Spring Midterm Section 1
72/84 students met the minimum standard of 73%, 30 students scored a B, 30 scored in A range.

Spring Midterm Section 2
50/84 met the minimum standard, 25 students scored a B, 9 scored an A.

Spring Final Section 1
71/84 students met the minimum standard, 58 students scored in B range, and 39 scored in A range.

Spring Final Section 2
62/84 students met the minimum standard, 25 scored in B range, and 21 in A range.

These results demonstrate measured improvement over the course of the Fall semester, and marked improvement into the Spring semester. This suggests that application of scientific concepts to practical situations aids in student comprehension. The scientific curriculum of this course is robust: students demonstrate satisfactory knowledge of basic climate science and satisfactory ability to apply these concepts to practical situations.
**AREAS V2 & V3**

*In-class activities:* Students read a variety of articles and watch several examples of how nations respond to climate change and influence international action. Concepts discussed include the impact of wealth on a country’s ability to respond to climate change, how the principles of nonwestern countries influenced the development of the climate justice movement, and the influence of institutional capacity on climate change negotiations. In addition, during the Climate Justice In-Class Simulation, (an in-class exercise where students are grouped into wealthy or impoverished “climate families” with prescribed experiences of climate change) students identify various cultural and socioeconomic influences on responses to climate change.

*Assessment Activities & Outcome:* Instructors evaluated student participation in these areas in a variety of ways. Students complete worksheets about the various factors of institutional capacity, and write reflections on the differences in international responses. Approximately 63 out of 84 students completing the activity received credit. These results demonstrate the ability of these students to discuss differences in national responses to climate change. However, these data weren’t very rich in assessing students understanding of how cultures outside of the U.S. respond to climate change. This assessment demonstrates the need to design more precise question prompts to elicit more nuanced responses from students. It also suggests the usefulness of more exacting methods to assess class participation. The activities used to evaluate these learning outcomes should be refined to access student knowledge in these areas more directly. Another useful option may be to expand the use of clickers to assess student knowledge and in-class participation.

(3) What modifications to the course, or its assessment activities or schedule, are planned for the upcoming year? (If no modifications are planned, the course coordinator should indicate this.)

Next year (AY 2013-14) will mark a shift in the course content due to the change in requirements and designations for the course, shifting to an R S and V only model, reducing the amount of writing due to the removal of Area Z requirements, and increasing class size to 120. We plan on integrating more features of the new Canvas LMS into the course, as well as increasing use of clickers for assessment. Additionally, this year a new IPCC report is due to be released, and so the content of the course will be updated to reflect the latest scientific understanding and consensus.

**Part 2**

To be completed by the department chair (with input from course coordinator as appropriate):

(4) Are all sections of the course still aligned with the area Goals, Student Learning Objectives (SLOs), Content, Support, and Assessment? If they are not, what actions are planned?

There is just one section of the course each semester, with three instructors team teaching it. Formal in person assessment meetings as well as weekly informal conversations among the three instructors help maintain consistency across the aspects of the course each instructor teaches as well as with the SJSU Studies Areas R, S, V, and Z goals, SLOs, content, support, and assessment.