

General Education Annual Course Assessment Form

Course Number/Title: METR 12/Global Warming

GE Area: B1

Results reported for: AY 13-14

of sections: 2

of instructors: 2

Course Coordinator: Alison Bridger (as dept chair)

E-mail: Alison.Bridger@sjsu.edu

Department Chair: Alison Bridger

College: Science

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?

SLO#1: "Students should be able to use the methods of science and knowledge derived from current scientific inquiry in life or physical science to question existing explanations". Raw data is stored in the chair's office/assessment data shelf (COADS).

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

In a department assessment retreat in January 2012, faculty discussed assessment at all levels, including in GE. Faculty decided to have an "assessment week" in which assessment activities would be conducted in *all* GE classes in one week. During AY 13-14, this was the week of April 14-18, 2014. In the meeting, faculty developed a set of questions to assess the SLOs. We designed a question to address SLO#1 in this core GE class MET 12.

In MET 12, students were asked to respond in-class to the following prompt: "Explain how and why temperatures are different on a clear winter night as opposed to a cloudy winter night, all else being the same". Briefly, the answer involves the physics of water vapor and liquid cloud droplets, which combine to prevent the loss of heat from the lower atmosphere. This is a version of the greenhouse effect. Provided that students had attended lectures (and/or read the text) on the topic of radiative heating/cooling of the atmosphere, the task should have been straightforward.

Data was gathered in both sections of MET 12 offered in Spring 14. Answer sheets from all sections of all GE classes were holistically graded by three faculty members in May 2014; the results for MET 12 are tabulated below. The meaning of the scores is: "+1" indicates that the student fully met the outcome; "0" indicates that the student partially met the outcome (perhaps something was missing, perhaps there was an error, but some of the "right stuff" was present); "-1" indicates that the student did not meet the outcome.

Section	Responses	+1	0	-1
A	47	21 (45%)	12 (26%)	14 (30%)
B	20	9 (45%)	4 (20%)	7 (35%)
Sum	67	30	16	21
Percent		45%	24%	31%

Although 69% of students queried fully or partially met the LO, about 1/3 (31%) did not – a disappointing finding. This is troubling because an accurate response to the prompt requires an understanding of the *greenhouse effect* (which gives us warmer nights in the Bay Area when the stratus deck rolls in overnight). In turn, understanding of the greenhouse effect is critical to understanding the science of Global Climate Change and Global Warming. And the title of the class is “Global Warming: Science and Solutions”. So, it may fairly be said that we need to do a better job in delivering the material in this class.

The faculty will discuss these results and their implications in Fall 14.

(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.)

The faculty will discuss these results and their implications in Fall 2014. As the data above suggests, we need to be doing a better job at delivering the *science* portion of the class! We do note that the results in the two sections are similar: one of the instructors is highly effective and always gets great ratings from students, and still at least 30% of students did not meet the LO. One issue here may be a perceived disconnect (on the part of the students) between the class topic (*global warming*) and the question posed (*overnight temperatures*). We the faculty understand that these are connected since we understand the physics. It is not clear that the students understand the connection. We may consider doing a better job of tailoring the question to the students!!!

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?

The chair is satisfied that this course is being delivered with full and appropriate attention to all area “B” goals, SLOs, content, support, and assessment.