

General Education Annual Course Assessment Form

Course Number/Title: METR 10/Weather & Climate

GE Area: B1

Results reported for: AY 11-12

of sections: ~12

of instructors: ~7

Course Coordinator: Alison Bridger (as dept chair)

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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).

Note that SLO#1 was to have been assessed in Fall 2010, was first assessed in Fall 2011 in an *ad hoc* manner, and has been re-assessed in Fall 2012 as part of a coordinated department plan.

- (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 (April 9-12, 2012). Faculty also developed a set of questions to assess the SLOs. We designed *one* question to address SLO#1 in *both* our core GE classes, MET 10 and MET 12.

In MET 10, the following question was posed: "Explain how and why temperatures are different on a clear winter night as opposed to a cloudy winter night, all else being the same". Faculty also discussed the elements that would be needed in a student's response in order to qualify as "meeting" the SLO. In the context of weather, a wrong answer would be to state that the presence of clouds implies the presence of a storm, with colder weather and colder overnight temperatures. In fact, the nighttime temperatures are warmer, and this due to a localized greenhouse effect.

Data was gathered in five sections of MET 10 and MET 12 (including the online MET 10 section). Answers were graded in three categories: "meets expectations", "does not meet expectations", or "partial" (typically indicating that the student had an incomplete understanding, but was not clueless). In the five sections (159 students), 82 met expectations (52%), 43 did not meet

expectations (27%), and 34 were partial (21%). More concisely, 73% of the students had at least some (correct) sense of the answer, whereas 27% did not meet the learning outcome. There was a noticeable variation in the fraction of students who did not meet expectations, ranging from as low as 15% with one instructor to as high as 34% and 38% with a second instructor. This variance could reflect more preparation for the assessment activity on the part of the first instructor, or could speak to a failure of one instructor to successfully teach this segment of the course. The faculty will discuss this fall ways in which this concern can be conveyed to the instructor of the class. In addition, the overall result of having only 52% of students clearly meet this SLO is disappointing. The relevant material in most sections would be delivered during the first third of the semester, and the assessment activity took place over halfway through the class (and after spring break). One possibility is that students retain only enough information to get them past the next midterm, and then forget it. The faculty feel that the concepts assessed here are more of the “understanding” variety than the “remembering” variety. At the same time, the physics of greenhouse warming does have some complexities, and thus the core concepts we want the students to understand may be lost in the complexity. The faculty will consider all these aspects at a fall meeting.

The majority of students (116 of 159) *did* meet the learning outcome, at least partially. Further we believe that our teaching in all sections of this course is being largely successful in teaching students about “how our physical world works” in the atmospheric arena. Armed with this knowledge, students can then go on to “question existing explanations”.

(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 in an assessment meeting this fall, and will seek ways to improve our overall performance relative to this SLO and across all sections and instructors. We remain unsure of the meaning of the phrase “question existing explanations” in the context of day-to-day weather, and thus will continue to have difficulties in assessing it.

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.