

San José State University
Science 110, Global Themes of Science, Sect. 2, Spring 2011

Instructor:	Dr. Elizabeth McGee
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Office Hours:	Mondays 11 a.m. – 1:45 p.m.; Tuesdays 8 – 9:15 a.m.; by appt
Class Days/Time:	Wednesdays 3:00 p.m. – 6:00 p.m.
Classroom:	DH 246
Prerequisites:	Bio 21, Chem/Phys 35A, and Geol 102, or their equivalents.

Course Description

“Global Themes in Science” is intended to serve as a capstone course for pre-service K-12 educators, and as such integrates concepts and ideas from the life sciences, physical sciences, and earth sciences. This semester, the phenomena and issues of global warming will serve as our point of focus, as it involves aspects of all three fields of scientific inquiry. Few topics have garnered more attention in public, political and scientific sectors. And for good reason: global warming has alarming potential for irreversibly changing the landscape of our planet, and consequently, the planet’s biodiversity.

In this course we investigate the phenomenon of global warming. The intention of the activities presented in this course is to increase your understanding of the biological, physical, and geological processes involved in global warming to the extent that you can lead informed and thoughtful dialogs with K-12 students. We also focus on actions that we can take to slow or offset its effects (the “solutions”). The intention of this phase of the course is for you to appreciate and understand a sampling of successful efforts in our community, and to develop an extended activity (in the format of a demo) that could be implemented in the future in your own classroom.

Student Learning Outcomes

At the completion of this course, students will be able to 1) integrate and synthesize concepts across the life sciences, physical sciences, and earth sciences as they relate to global themes in science such as the phenomena and issues of climate change; 2) critically evaluate scientific evidence for climate change, distinguishing between science and pseudoscience where relevant; 3) understand the methods and limits of scientific

investigation in climate change; 4) apply a scientific approach to testing hypotheses about climate change; 5) communicate effectively verbally and in written form the results of their investigations; 6) extend understanding of climate change to a K-12 audience in the form of classroom activities and lesson plans which emphasize inquiry-based, active learning.

Required Texts/Readings

Textbook

Flannery, Tim. 2005. *The Weather Makers* (ISBN 13-978-0-87113-935-1; also available in paperback)

Classroom Protocol

I expect you will be present at every class meeting and prepared to engage in the activity for our class meeting. Active participation refers to being engaged in the learning process by 1) asking questions; 2) taking notes as appropriate; 3) participating in discussions and/or the activity; and 4) providing written feedback during student demonstrations. It is not enough to simply show up for class (although that is a start) – you must be ready to work. This course is a requirement for pre-service teachers, and as such I will have the same expectations of you that you would have for your students, namely:

- please arrive on time.
- cell phones, Blackberries, and other portable devices must remain switched off while in class; please do not step into the hallway to take a call during class. We will have breaks during which time you can make your phone calls.
- computers and the University's wireless service may be used in class only in conjunction with class assignments and work.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's [Catalog Policies](http://info.sjsu.edu/static/catalog/policies.html) section at <http://info.sjsu.edu/static/catalog/policies.html>. Add/drop deadlines can be found on the [current academic calendar](http://www.sjsu.edu/academic_programs/calendars/academic_calendar/) web page located at http://www.sjsu.edu/academic_programs/calendars/academic_calendar/. The [Late Drop Policy](http://www.sjsu.edu/aars/policies/latedrops/policy/) is available at <http://www.sjsu.edu/aars/policies/latedrops/policy/>. Students should be aware of the current deadlines and penalties for dropping classes. Information about the latest changes and news is available at the [Advising Hub](http://www.sjsu.edu/advising/) at <http://www.sjsu.edu/advising/>.

Assignments and Grading Policy

Active Participation	15%
Midterms (two)	35%
Essays	15%
Projects (demonstration = 15%; writeup = 20%)	<u>35%</u>
	100%

Grades will be assigned by taking the total number of points earned for all assignments, quizzes, and exams and calculating the percentage earned. Whole letter grades (no +/-) will be determined using the following scale:

A = 90% - 100% B = 80% - 89% C = 70% – 79% D = 60% - 69% F = < 59%

This course requires a significant amount of reading and thinking, and a willingness to share ideas with each other. Be prepared to be an active learner. It is essential that you prepare, as you will be spending much of your time participating in group discussions outside of and in class.

You are expected submit essays and reports that are free of spelling, grammatical, and syntax errors. In other words, your writing should be a level appropriate for a university-level course. ***Writing assignments (including essays/actions plans and the course project) containing more than 10 errors will be returned ungraded and no credit will be assigned.*** If you need assistance with your writing, please visit the Writing Center in Clark Hall 216 (<http://www.sjsu.edu/writingcenter/>).

PROJECTS: Thirty percent (35%) of your grade will be based on research report and a classroom demo in which you explore some aspect of global warming to teach in the classroom. You will work with a partner or two to create and present your demo. In addition, you will create a portfolio with your report, activity, and assessment. Information on the project will be distributed later.

University Policies

Academic integrity

Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The [University's Academic Integrity policy](http://www.sjsu.edu/senate/S07-2.htm), located at <http://www.sjsu.edu/senate/S07-2.htm>, requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The [Student Conduct and Ethical Development website](http://www.sa.sjsu.edu/judicial_affairs/index.html) is available at http://www.sa.sjsu.edu/judicial_affairs/index.html.

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy S07-2 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential

Directive 97-03 requires that students with disabilities requesting accommodations must register with the [Disability Resource Center](http://www.drc.sjsu.edu/) (DRC) at <http://www.drc.sjsu.edu/> to establish a record of their disability.

SJSU Writing Center

The SJSU Writing Center is located in Room 126 in Clark Hall. It is staffed by professional instructors and upper-division or graduate-level writing specialists from each of the seven SJSU colleges. Our writing specialists have met a rigorous GPA requirement, and they are well trained to assist all students at all levels within all disciplines to become better writers. The [Writing Center website](http://www.sjsu.edu/writingcenter/about/staff/) is located at <http://www.sjsu.edu/writingcenter/about/staff/>.

Science 110, Global Themes of Science – Climate Change

Week	Date	Topics, Readings, Assignments, Deadlines
1	Jan 26	Introduction Documentary & Discussion: <i>An Inconvenient Truth</i> (SLO 2) Outside of class: watch the documentary PBS' <i>Global Warming: the Signs and the Science</i> outside of class; Review lessons plans at CSI: Climate Status Investigations http://www.keystonecurriculum.org/ (you can look for others as you like) (SLO 6)
2	Feb 2	Electronic resource demonstration with Tina Peterson (SLO 2) Discussion of Global Warming documentary (SLO 2) Discussion of Projects (SLO 6)
3	Feb 9	INSTRUCTOR DEMO (SLO 3) Preliminary work on demo kits (SLO 6) How to cite information and information resources (SLO 5)
4	Feb 16	Midterm #1 (first half) Human Footprint – activity and discussion (second half) (SLO 2)
5	Feb 23	Green Team Materials Recovery Facility (Field Trip); meet at 575 Charles Street, 95112 no later than 3:15. (SLO 6)
6	March 2	Student Demonstrations: Group 1 (SLOs 1-6)
7	March 9	Student Demonstrations: Group 2 (SLOs 1-6)
8	March 16	Student Demonstrations: Group 3 (SLOs 1-6)
9	March 23	Student Demonstrations: Group 4 (SLOs 1-6)
10	March 30	Spring Break
11	April 6	Student Demonstrations: Group 5 (SLOs 1-6)
12	April 13	Midterm #2 (first half) Alternative Energy activity and discussion (second half) (SLO 2)

Week	Date	Topics, Readings, Assignments, Deadlines
13	April 20	Clean Energy Showcase (Field Trip); meet at 5 th and Santa Clara no later than 3:15. (SLO 6)
14	April 27	Individual student conferences for project advising
15	May 4	Don Edwards S.F. Bay National Refuge (Field Trip) (SLO 6)
16	May 11	Seven Trees School Garden Project (Field Trip); meet at 3975 Mira Loma Way, 95111 no later than 3:15. (SLO 6)
Final Exam	TBA	