University of Alberta  
SCI 299 - Science Citizenship  
Fall and Winter, 2014-2015

Instructor: Glen R. Loppnow  
Office: CCIS 4-103  
E-mail: glen.loppnow@ualberta.ca  
Web Page: SCI 299 Moodle (eClass) website

Office Hours: By appointment

Lecture Room & Time: Chemistry W1-50, Wednesdays, 1800-1920

Course Description:  
A course for supervised participation in a citizenship project. In this course, students will work in interdisciplinary groups to research and present the science underlying a global issue, as well as implement a local solution to that global issue. The course will also include a discussion of the possible career paths, ethics, culture and values of scientists. Normally taken after completion of a minimum of 30 units of course weight in a program in the Faculty of Science. Prerequisite: GPA of 2.5 or higher, at least five science courses, and consent of Faculty of Science.

Course Objectives
• Apply scientific concepts and principles in everyday life;
• Demonstrate the relevance of scientific concepts to global and local issues; and
• Appreciate the value of creativity and social consciousness in scientific research.

Expected Learning Outcomes:
• Create and produce a persuasive, effective, scientific evidenced-based, oral presentation on the chosen global issue and local solution;
• Develop problem-solving strategies and apply them to the project;
• Justify initiatives through proposal writing;
• Categorize and manage project tasks with group members.

Past Evaluative Material:
After students choose their projects, examples of past presentations and local solutions will be given.

Grade Evaluation:
There are no exams in this course. Grades will be assigned from marks by plotting the marks on a graph and finding appropriate breaks between students. A minimum of 50% is required to pass the course; students with total marks below 50% will receive an 'F'. Reaching the following marks guarantees at least the grade following: 95% A+, 90% A, 86% A-, 82% B+, 78% B, 74% B-, 70% C+, 66% C, 62% C-, 58% D+, 54% D.
**ASSESSMENT** | **WEIGHTING**
--- | ---
Assignments | 10%  
Proposal draft | 5%  
Final proposal | 10%  
Peer marks - group work | 20%  
Peer marks - final presentation | 10%  
Instructor marks - group work | 10%  
Practice presentation | 5%  
Final presentation | 30%  

Grades are unofficial until approved by the Department and/or Faculty offering the course.

**Missed Term Work and Assignments:**
A student who cannot write an assignment or present on the appointed day due to incapacitating illness, severe domestic affliction or other compelling reasons can apply for an excused absence by discussing with the instructor. Deferral of term work is a privilege and not a right; there is no guarantee that a deferral will be granted. Misrepresentation of Facts to gain a deferral is a serious breach of the *Code of Student Behaviour*.

**Exams:**
There are no exams or midterms in this course. There is no possibility of a re-examination in this course.

**Student Responsibilities:**
**ACADEMIC INTEGRITY:** "The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behaviour (online at [http://www.governance.ualberta.ca/en/CodesofConductandResidenceCommunityStandards/CodeofStudentBehaviour.aspx](http://www.governance.ualberta.ca/en/CodesofConductandResidenceCommunityStandards/CodeofStudentBehaviour.aspx)) and avoid any behaviour which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University."

All forms of dishonesty are unacceptable at the University. Any offence will be reported to the Senior Associate Dean of Science who will determine the disciplinary action to be taken. Cheating, plagiarism and misrepresentation of facts are serious offences. Anyone who engages in these practices will receive at minimum a grade of zero for the exam or paper in question and no opportunity will be given to replace the grade or redistribute the weights. As well, in the Faculty of Science the sanction for cheating on any examination will include a disciplinary failing grade (no exceptions) and senior students should expect a period of suspension or expulsion from the University of Alberta. Students in this course should pay particular attention to guidelines and issues surrounding “Collaborating on Assignments” link on the Truth in Education website at [http://www.uofaweb.ualberta.ca/TIE/](http://www.uofaweb.ualberta.ca/TIE/)
CELL PHONES AND RECORDINGS: Cell phones are to be turned off during all classes. Recording is permitted only with the prior written consent of the professor or if recording is part of an approved accommodation plan.

STUDENTS WITH DISABILITIES: Students who require accommodation in this course due to a disability are advised to discuss their needs with Specialized Support & Disability Services (2-800 Students’ Union Building).

ACADEMIC SUPPORT CENTRE: Students who require additional help in developing strategies for better time management, study skills or examination skills should contact the Student Success Centre (2-300 Students’ Union Building).

Disclaimer: Any typographical errors in this Course Outline are subject to change and will be announced in class.

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SCI 299-Science Citizenship
Class schedule

Week 1-Introduction to the course and each other. Group introduction activities.
Week 2-Introduction to citizenship and project. Students choose groups.
Week 3-Characteristics of a good group. Individual group activities.
Week 4-Ethics in science. Group work.
Week 5-Characteristics of scientists. Problem due. Group building activities
Week 6-Problems returned with feedback. Culture of science. Group work.
Week 7-Career paths in science. Group work.
Week 8-Proposal writing and funding sources.
Week 9-Proposal draft due at end of period. Group building activities.
Week 10-Proposal drafts returned to students with feedback. Discussion.
Week 11-Presentation methods and examples.
Week 12-Group work. Meeting with peer mentors and instructor.
Week 13-Group building activities.
Week 14-Group work. Winter Break celebration. Final proposal drafts due.

END OF FALL TERM/BEGINNING OF WINTER TERM

Week 15-Discussion of science in the projects.
Week 16-Oral Presentation Skills workshop.
Week 17-Creative media workshop.
Week 18-Group work - presentation
Week 19-Group work - dress rehearsal for practice presentations.
Week 20-Practice presentations due.
Week 21-READING WEEK break.
Week 22-Feedback discussion on presentations.
Week 23-Group work.
Week 24-Meeting with peer mentors and instructor.
Week 25-Group work.
Week 26-Group work.
Week 27-Dress rehearsal practice.
Week 28-Final presentations.

There is no midterm or final exams for this course.
Science 299  
“Science Citizenship”

Overview

For this course, you will decide on a global issue with a science theme that interests/concerns you, research the science behind the issue as well as potential solutions, and present your research and solutions to the class and interested others. In addition, you will write a proposal to obtain seed funds and will implement a local solution to your global issue.

Group composition

You will work in groups of 3-5. How groups will be assigned will determined in the first two weeks of class and announced soon after that.

Objectives

Course Objectives

- Apply scientific concepts and principles in everyday life;
- Demonstrate the relevance of scientific concepts to global and local issues; and
- Appreciate the value of creativity and social consciousness in scientific research.

Expected Learning Outcomes:

- Create and produce a persuasive, effective, scientific evidenced-based, oral presentation on the chosen global issue and local solution;
- Develop problem-solving strategies and apply them to the project;
- Justify initiatives through proposal writing;
- Categorize and manage project tasks with group members.

Deliverables

Your group will deliver a practice and a final presentation, each no longer than 30 minutes, of the results of your research and answer at least one question each from the faculty and students. The presentation should be a succinct description of the global issue chosen and its significance, the particular problematic aspect of the global issue you want to focus on, and your implemented local solution to this aspect of the global issue. Throughout, the discussion should be focussed on the science and its relation to the global issue.

Creativity and your presentation delivery are two significant aspects of the grading in this group project, so you should keep these in mind as you plan your presentation. The style of presentation is completely open, so consider all types of media and styles. Resources and modest funds for the presentation may be made available.
To implement your solution to your chosen global issue and your presentation, you will write a proposal, both in draft form and final form. In that proposal, you can state your case for any modest funds you may need, as well as the problem, solution and scientific basis of each.

Note that your group must implement a local solution as a part of this group project. In the past, this part of the group project has taken groups significantly longer than they planned. Your group may wish to start planning for this aspect of the group project as soon as practical.

**Grading**

You must hand in the following for grading:

1. Peer marks and justification for your group members (Due at end of every class meeting).
2. Various assignments approximately every 2-3 weeks. Will be announced in class
3. 1-page description of the chosen global issue (Due 6 pm, October 15, 2014, handed back the following Wednesday).
4. Proposal draft using template on eClass (Due 6 pm, November 5, 2014, handed back the following Wednesday).
5. Final proposal using template on eClass (Due 6 pm, December 3, 2014, handed back after Winter break).
6. Interim practice presentation. (Due 6:00-7:20 pm, February 11, 2015).
7. Peer marks for other interim presentations (not your own). (Due 6:00-7:20 pm, February 11, 2015). Attendance is required on the presentation day.
8. FINAL presentation and local solution implementation. (Due 6:00-7:20 pm, April 8, 2015).
9. Peer marks for other FINAL presentation and local solution implementation. (Due 6:00-7:20 pm, April 8, 2015). Attendance is required on the presentation day.
10. Marks assignment for the Science Citizenship group project may be delayed up to 1 month from the FINAL presentation date (April 8, 2015) to allow for the impact of the local solution to be fully gauged.

**Proposal and Presentation Notes**

1. Proposal (no more than 2 pages) must include:
   - Summary (no longer than 250 words)
   - Budget with Budget Justification *(modest funds will be available)*
   - Description of your problem, solution and presentation method
   - Short description of significance of problem and solution.
   Template will be available on eClass.

2. Presentation can be in the medium of your choice, keeping in mind the grading rubric that will be handed out later in the class.
## Grading Rubric: Scientific Citizenship

### Creativity (25):

<table>
<thead>
<tr>
<th></th>
<th>Needs Improvement</th>
<th>Acceptable</th>
<th>Excellent</th>
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</thead>
<tbody>
<tr>
<td>Presentation method (25)</td>
<td>Presentation is bland</td>
<td>Presentation creativity integrates well with topic</td>
<td>Presentation creativity enhances impact of presentation</td>
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<td></td>
<td>5</td>
<td>15</td>
<td>25</td>
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### Significance (20):

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<th></th>
<th>Needs Improvement</th>
<th>Acceptable</th>
<th>Excellent</th>
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<tbody>
<tr>
<td>Problem (20)</td>
<td>Problem chosen is an insignificant part of or tangential to the global issue</td>
<td>Problem chosen is a pretty significant part of the global issue</td>
<td>Problem chosen is one of the most significant parts of the global issue</td>
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<td>5</td>
<td>12</td>
<td>20</td>
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### Presentation (15):

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<tr>
<th></th>
<th>Needs Improvement</th>
<th>Acceptable</th>
<th>Excellent</th>
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</thead>
<tbody>
<tr>
<td>Clarity and organization (5)</td>
<td>Content unclear and disorganized</td>
<td>Content mostly clear and organized</td>
<td>Content and organization very clear</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>3</td>
<td>5</td>
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<tr>
<td>Teamwork (3)</td>
<td>Some of the group involved</td>
<td>Most of the group involved</td>
<td>All of the group involved</td>
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<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Execution (7)</td>
<td>Media is not well laid out and delivery is unpolished and awkward</td>
<td>Minor issues with media and communication of message</td>
<td>Media and delivery communicates message well</td>
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<td></td>
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<td>4</td>
<td>7</td>
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### Scientific Content (15):

<table>
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<tr>
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<th>Needs Improvement</th>
<th>Acceptable</th>
<th>Excellent</th>
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<tbody>
<tr>
<td>Problem-accuracy (15)</td>
<td>Scientific content of problem chosen is not accurate nor clear</td>
<td>Scientific content of problem chosen is mostly accurate and clear</td>
<td>Scientific content of problem chosen is accurate and clear</td>
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<td>5</td>
<td>10</td>
<td>15</td>
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Local Solution (25):

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<th></th>
<th>Needs Improvement</th>
<th>Acceptable</th>
<th>Excellent</th>
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<tbody>
<tr>
<td>Feasible (10)</td>
<td>The solution will not be easily implemented locally</td>
<td>The solution will encounter only a limited number of problems in being implemented</td>
<td>The solution is easily implemented locally</td>
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<tr>
<td></td>
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<td>7</td>
<td>10</td>
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<tr>
<td>Significance (5)</td>
<td>The solution will not locally affect the global issue</td>
<td>The solution will have some local impact on the global issue</td>
<td>The solution will have a significant local impact on the global issue</td>
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<td>3</td>
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<tr>
<td>Novel (5)</td>
<td>The solution has been done many times before</td>
<td>The solution has been rarely tried or tried in ineffective ways</td>
<td>The solution is novel</td>
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<td></td>
<td>1</td>
<td>3</td>
<td>5</td>
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<tr>
<td>Sustainable (5)</td>
<td>Solution is a one-off effort and is difficult to sustain.</td>
<td>Solution can be sustained for a significant period of time</td>
<td>Solution has long-term sustainability in addressing the problem</td>
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