CE5572 Design for Sustainable Development: Create I
Civil Engineering 5572
2 credits
Spring 2013 (J Term – January 14-18, 2013)

Meeting time
Monday-Friday 9:00am – 5:30pm
Room R380
Learning & Environmental Sciences, St. Paul Campus
January 14-18, 2013

Instructor
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Requirements

Instructor's permission. Course open to graduate and professional students. Open to junior and seniors undergraduates with a GPA of 3.0 or higher. Students must have a project or venture idea they will work on for the course. For expected preparation, see below.

Course description

This course provides an intensive, hands-on experience regarding entrepreneurship – especially social entrepreneurship – to develop sustainable solutions to environmental and social problems. The target audience is students and student teams who have identified and/or worked on a specific solution and wish to further develop their ideas. This course is offered during the January term as a one-week, full-time (9:00am – 5:30pm) course.

Students must have a clearly defined problem statement identifying the challenge they aim to address, a target location or community, and a proposed solution that they wish to develop. We welcome and encourage student teams working on a project to enroll in this class together. Student solutions should address a problem that is about the broadly defined "environment"; examples of applicable areas include clean water, sanitation, energy, air pollution, public health (e.g., malaria), food and agriculture (includes food security and safety), ecosystem services, and aspects of the built environment (e.g., housing).

Course objectives include:
- Introduce social entrepreneurship frameworks to students who seek solutions to a specific environmental challenge.

- Provide tools and real-world examples of how to define, test, and refine a potential solution.
- Provide feedback and interactive sessions that allow students to develop and improve their proposed solution.
- Empower students and provide tools that will allow them to carry forward their ideas after the class ends.
- Students will develop solutions to a real-world problem --- solutions that are creative, sustainable, and have real impact.
- Program structure will reflect that important problems require teamwork, leadership, and interdisciplinary collaboration.

Technical and business development professionals will be available as mentors.

Teams must develop a product or service, and corresponding sustainable business model for delivery of the product or service. A sustainable business model means that the company or organization delivering the product or service can do so by generating revenue. The business model could vary (for-profit organization, non-profit organization, co-op, social venture), but the same sustainability criterion applies: the approach needs to be financially self-sustaining. The client (customer) is always important, because they will need to purchase the service for it to be a sustainable enterprise. At the end of the class, students present their ideas to a panel of experienced business development professionals and potential funders.

Educational Objectives

The course will help to develop the following skills:
- An understanding of core aspects of entrepreneurship, and how the principles of entrepreneurship can be applied to solving an environmental problem.
- An ability to identify and refine business model components of a proposed solution to an environmental problem.
- An understanding of key leadership traits.
- An ability to communicate effectively.

Course activities will require students to demonstrate skills such as:
- Develop a real-world business/design solution to an environmental problem
- Synthesize knowledge from other courses
- Write a professional report
- Make effective oral presentations

At the end of the course, each student should have:
- A deeper understanding of social entrepreneurship and how to apply it.
- A clear and executable plan for going forward, matched to resources available.
- A solid and compelling presentation.
- An introduction to tools and techniques for program management, design thinking, communication and business models.
- Connections to
  - Mentors

- o Funders
- o Other entrepreneurs

Texts:

Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers by Alexander Osterwalder and Yves Pigneur, 2010, Wiley.

Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty by Abhijit Banerjee and Esther Duflo, 2011, PublicAffairs

Emerging Markets, Emerging Models (available online) by The Monitor Group.

Note: students should read both books and the Monitor study before the first day of class.

Course audience and preparation

The course is open to students from any major or college. Prior courses in business are helpful but definitely not required. The course is aimed at students that are interested in creating a solution for a environmental or social problem. Students are expected to have an idea or plan before beginning the course. This idea will need to be discussed with the instructor, prior to getting permission to enroll. It may be just an idea, or something the student has already worked on in some fashion. But students just can't sign up for the course and hope to develop an idea in the course. The course is set up to work on your idea from the beginning.

This is an application-oriented course. There is a broad spectrum of topics covered, and a mix of lectures and workshop activities.

Students are expected to know the necessary background for their project of interest. For example, if the project is dealing with public health issues, the student should have the appropriate academic and/or work background necessary to address the problem credibly. This will be part of the enrollment discussion and approval with the instructor.

The course load for the week of class is intense. Students will be expected to be fully engaged for the entire week.

Course topics
This list of topics is subject to change.

Before day 1: pre-assignments
Before the first day of class, students must carry out the following tasks:
- Read books and paper listed above, and come prepared to discuss these books.
- Set up a Business Model Canvas for your project, using the framework in the Osterwalder and Pigneur book. Fill out all parts. Come prepared to discuss your plan,

potential strengths and weaknesses, and what you would need to do to address weaknesses.
- If working in a team, first conduct the tasks above individually, then synthesize ideas into one Canvas for the team.

Day 1: Reframe Your Plan
- Introductions, Introduction to Business Model Canvas and Social Venture template.
- Ideas that work, how to frame the idea/issue, and social value proposition
- Introduction to story telling.

Day 2: Looking at Customers
- Design research: How to evaluate and assess customer needs in light of social entrepreneurship.
- Define a design research protocol
- How to prototype and test the idea.

Day 3: What is Your Offering?
- How to define your value proposition (economic and social)
- Effective presentations
- Venture plan
- Elevator Pitch: development and practice

Day 4: How to Move Forward
- Discovery-Based Project Planning: developing a plan for going forward
- SocEnt framework – how to take your plan forward

Day 5: Presenting and Final Reviews
- Creating a business or organization
- Final review of project plans
- Presentation to a panel

Grades

Course grades will be based on the following:

Preparation:	10%
Class participation:	20%
Class assignments	20%
Final presentation:	50%
Total	100%

Course website
Assignments, grades, and other materials will be posted to the course website on Moodle. This website can be accessed via **http://myu.umn.edu.** After logging in, click on "my courses". All

grades, including the final course grade at the end of the semester, will be posted to the class website as soon as they are available.

Background material for the course, and other information about the Acara program and courses, is at: **http://acara.umn.edu/** and **http://www.facebook.com/AcaraUMN**.

Expectations

Students should:
  1. Complete assignments fully, professionally, and on time.
  2. Prepare and deliver all required presentations.
  3. Read assigned material prior to class.
  4. Attend and participate in all lectures.

Assignments

Given the course is a one-week, intensive course, most of the work is done during the actual course. There may be overnight assignments, mostly to follow up on specific topics or questions raised about the student's project during the course itself.

This process of the course is to further define the student-defined project as the week proceeds. By the end of the week, the students will have a 5-7 minute presentation, a two-minute elevator pitch and a two page written summary of their venture plan.

Exams

This is a project driven course. There are no traditional exams. However students will be required to make a final presentation in front of an external panel of reviewers.

Grading:

Students are responsible for ensuring that their assignments are received.

University of Minnesota's Uniform Grading Policy is as follows.

A	Achievement that is **outstanding** relative to the level necessary to meet course requirements.
B	Achievement that is **significantly above** the level necessary to meet course requirements.
C	Achievement that **meets** the course requirements in every respect.
D	Achievement that is **worthy of credit**, even though it fails to meet fully the course requirements.
F	Represents failure and signifies that the work was either: 1) completed but at a level **not worthy of credit**, or 2) **not completed** and there was no agreement between the student and instructors that the student would be awarded an Incomplete.

Persons with disabilities that require accommodations will be assisted on an individual basis. Contact Disability Services (626-1333) and the instructor in advance to make arrangements.

Cheating is not allowed. Anyone found cheating will immediately receive a grade of zero on that assignment. If such behavior occurs more than once, the student will receive a grade of F in the class. ***Plagiarism is cheating.*** UMN policies on dishonesty are available from the Office for Student Academic Integrity: www.osai.umn.edu. **Harassment** and disruptive and disturbing behavior will not be tolerated; students will be asked to leave immediately if such behavior occurs. Such behavior is defined in the Student Conduct Code.

Helpful study strategies may be found at **www.studygs.net/index.htm** and **hegis.umn.edu/res.htm**.