Overview
Grand Challenges facing society include problems such as food security, climate change, clean water, clean energy, and cyber security. This 1-credit class has two interwoven parts: (1) teams explore design thinking and its application to local aspects of global grand challenges; (2) working with Carlson School of Management, teams propose a solution; via the “10⁹” competition, teams seek funding for their idea.

Goals
Students taking this class will
• Demonstrate knowledge of current Grand Challenges, and of how university learning can help someone address those Challenges.
• Practice design thinking (discovery, ideation, rapid prototyping).
• Working in groups, use design thinking to identify a problem to focus on and a solution they wish to implement.
• Plan steps they could take after the class ends, to implement their ideas.

Via a competition (“10⁹”), teams with strong ideas may be funded to carry out their ideas.

Requirements
Passionate about solving big problems. Desire to apply university learning to real-world problems and to helping others. Work well in groups. Not afraid of challenges and learning new skills.

What?
This class is about problem solving. To identify problems and potential solutions, we employ listening to others, brainstorming, and rapid prototyping. We aim to focus on important problems (“Grand Challenges”), through a local lens.

So What?
(1) Grand Challenges are major problems facing society for the coming decades or longer. They are worth learning about and working on. (2) The approach used here, called design thinking (listening with empathy, prototyping, etc.), is useful in many fields and nearly any career. (3) Student teams in the class will propose projects they would like to implement. Via a competition, we will identify and fund the best projects.

Now what?
Students taking this class will apply for funding via the 10⁹ (“10 to the 9th”) competition: In 1000 hours and with up to $1000, how can you positively impact 1000 people on a Grand Challenge topic. Teams can also enter other competitions, such as the Acara Challenge. This class provides a 1-credit introduction to finding a problem & solution. Teams are comprised of students from CSE, Carlson, and other.
Description
This class is about problem solving. The class will introduce students to a framework for working on large, complex problems. This framework, called design thinking, includes techniques to identify problems and potential solutions, listening to others, brainstorming, and rapid prototyping. Those approaches are lifelong skills that students of all majors will use again and again. The class aims to focus on big problems (“Grand Challenges”), but connecting these larger problems to our everyday experiences. This semester, students will choose one of four areas: food, water, energy, or health.

This class is will be jointly taught with Carlson School of Management. Of the ~15 instruction weeks during the semester, during approximately 6 weeks class will be held jointly with CSOM students.

Expectations
Be engaged, be honest, be disciplined. This class is about taking risks. Don’t be afraid to try new ideas. Failure is part of taking risks; what’s important is, can you learn from your efforts and do better the next time?

Assignments
Grading for this class aims to reflect effort, creativity, and willingness to wholeheartedly try new ideas. We are not grading on “did you get the right answer?”, but instead are looking at whether you truly engaged with the assignment. See “expectations” section above; this class is about enthusiasm, effort, and rigorous, honest evaluation of what works and doesn’t work.

Many homework assignments will be graded on a check/check-plus/check-minus scale. Assignments will be submitted online. Each assignment will have a deadline, and should be completed fully, professionally, and on time. If assignments are submitted up to 24 hours late, 25% of the points will be taken off. Assignments submitted over 24 hours late will be given a grade of zero. Students are expected to complete all assignments.

“Three strikes” policy: Any student with more than two zeros (i.e., a student failing to turn in three or more assignments on time) will automatically receive a grade of “D”. Assignments that are turned in but reflect little effort will receive a grade of zero. See the first expectation listed above: be engaged.

Grade weighting:
10% Class participation
25% homework assignments (due each week)
25% CSE project: prototype & final presentation, April 8
40% CSE+CSOM project: presentation (online; in-class) & prototype, May 6

Students are expected to be at all classes. (Attendance is a prerequisite for participation & engagement; see “expectations”.) If you miss a class, you must have a doctor’s note.