ARCH 298; Special Group Study
Design, Innovation, Collaboration
Prof. Clark Kellogg
Fall 2010, 1 unit

1. Basic Information

Faculty: Clark Kellogg, College of Environmental Design
Enrollment Limit: 20
Class Meeting: 4 meetings: Four Friday mornings or four Saturday mornings
Office Hours: Tuesdays 4-6, Wurster 5th Floor in the Cal Design Lab at Wurster
Email: clark@clarkkellogg.com
Phone: 510.388.2967
URL: http://wursterstudio.ning.com/ or concurrent development of campus-based site

2. Course Description

Prerequisites:
None. Open to graduate-level students in all majors or with permission of instructor

Overview of Course:
This is a new course designed to integrate interdisciplinary collaboration and innovation practices with CED’s design theory and process expertise. Design is now being understood as useful in contexts other than the traditional object-oriented design professions. Many disciplines are interested in learning about design thinking and how to deploy design methods to solve an ever-widening range of complex problems. The term “wicked problems,” coined by CED professor Horst Rittel in the 1970’s, characterizes this type of complexity.

But successful high-level solutions to complex problems requires more than design thinking and design process. They also require systems thinking and critical thinking along with effective innovation and collaboration practices. This course will expose students to an integrated model of all these areas. The course will take place in the newly-established Cal Design Lab at Wurster where these practices will be taught and utilized. The project-based learning
experiences will anchor the theory and practice of the model. The course content integrates with a related course, “Problem Finding/Problem Solving” being introduced in the Haas School of Business this fall. This integration will allow students from different schools to work together on interdisciplinary teams. It is envisioned that over time these courses and their attendant practices will become the baseline “lingua franca” of interdisciplinary project work in the campus network of design labs.

The course is project-based and will integrate talks/readings/exercises with projects/practices. Students will work on interdisciplinary projects. Drawing from disciplines across the campus, this is the entry-level course for access to the Cal Design Lab at Wurster and for supporting the ongoing development of practices and culture of interdisciplinary collaborative work.

The course is organized around five core process steps that map to elements of the core design pedagogy of CED (and other design-based learning methods). These are:

1) **Understand**: learning from subject experts and readings regarding trends, social impacts, new technologies and techniques

2) **Observe**: collecting information firsthand through asking open-ended questions, observing people and processes and engaging participants in co-creation activities to uncover new patterns of behavior using the three-part cycle of i) ask, ii) see, iii) engage

3) **Synthesize (and analyze)**: recognizing patterns and anomalies from both secondary research and observation, allowing the development of insights and new concepts
4) **Realize**: ideating solutions through sketches, floor plans and strategies which become the mode of communication for sharing research findings among students

5) **Experiment (prototype and evaluate)**: converting solutions into prototypes and developing meaningful measures to validate solutions against identified needs. Also allows for documenting evidence of progress and refining solution prototypes for higher chances of success

**Functional Goal:**
These five core process steps are the same ones being taught in the Haas course, “Problem Finding / Problem Solving.” While this CED course unpacks them through a different entry point and to some extent based on a different professional skills, students completing this course will share an important skill set with students completing the Haas course. The goal of this strategy is to create, over time, a growing number of design labs users from different disciplines who have shared skills and practices and, thus, can work together productively on interdisciplinary projects. These skills are also being recognized as essential to collaborative practices in the design professions.

**Student Learning Objectives:**
• Establish students’ design thinking and design skills de-linked from strict object-making
• Develop working knowledge and experience of innovation processes and cycles
• Develop working knowledge and experience of collaboration and co-creation process
• Become fluent in the operation and culture of the Cal Design Lab

**Methods of Instruction:**
The course consists of readings, seminar discussions, lectures, guest speakers, group exercises, project-based assignments and student sketchbooks/written reflections.

**Primary or Required Selected Readings:**
• *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation*, by Tim Brown, Harper Collins, 2009
• *Indigo; a Case-Study in Design Innovation*, Steelcase Workplace Futures
• *A Whole New Mind*, by Daniel Pink, Riverhead Books, 2005
• *The Ten Faces of Innovation*, Currency Doubleday, by Tom Kelley
Papers and Articles:
“Why Horst W.J. Rittel Matters,” by Chanpory Rith and Hugh Dubberly
“Learning from Studio,” by Clark Kellogg, Design Intelligence Knowledge Reports, January, 2006
“Culture of the Charrette,” White Paper by Arnold Wasserman
“Ideo’s David Kelley on ‘Design Thinking,’” by Linda Tischler, Fast Company magazine, February 1, 2009

Websites and Links:
• Design Thinking; Rethink. Rebalance. Refresh   http://design.blogs.sauder.ubc.ca/
• Cal Design Lab at Wurster   http://wursterstudio.ning.com/
• BID: Berkeley Institute of Design   http://bid.berkeley.edu/

Other Materials:

Guest Speakers:
Innovation Practices: Erika Gregory, President, Collective Invention, Inc
Systems Thinking: Kristin Cobble, Founder and President, Courion Group, Inc.
Design Frameworks: Arnold Wasserman, Chairman, The Idea Factory

3. Course Requirements

Exams and Quizzes:
Student learning and accomplishment will be assessed via:
• The quality and insight of the Team Project
• Individual contribution to Team Project
• Insight essay on design and innovation skills
• Summary review of individual student’s sketchbook/notebook
Assignments/problems:

Session One:  Complete Learning Styles Inventory
Core skills insight questionnaire (homework)
Innovation Process Speed Cycle: Wallet Exercise
Team Problem Ideation

Session Two:  Team Formation
Assign Team Innovation Problem
Team presentation of problem statement
Personal Observation exercise: Vegetable or Fruit Observation (From Mayfield, 2007) (homework)
Team Field Observation (do and bring to Session Three)
Inquiry Research (do and incorporate into Synthesis)
Team Synthesis Activity (do and bring to Session Three)

Session Three:  Realize, Prototype One (in teams)
Diverge:  Co-generate alternative concepts
Converge:  Select multiple concepts for prototyping
Prototype:  Low tech, rapid testing to choose 1 solution

Session Four:  Prototype Two, Presentation (in teams)
Prototype:  “Post-sleep” prototype completion
Presentation:  Create the story and present to class/experts
Debrief:  Review projects (group) and
Write concluding personal reflections (homework)

4. Policies (based upon CED Syllabus Guidelines)

Grading Procedure: Grades will be determined as follows:
20% on homework assignments (class sessions 1 and 2)
20% on class participation and collaboration (all sessions)
30% on team projects (presented in final class session)
30% on notebook/sketchbook (final class submittal in lieu of final exam)
Attendance and tardiness: Students are expected to be in class on time and prepared to work. Poor attendance/tardiness will be reflected in the 20% of grade on class participation and engagement.

Class participation: All students are expected and encouraged to participate fully in the class and team exercises and conversations as they are considered critical to learning.

Missed exams / make-up exam procedures: Handled on an individual basis
Missed assignment procedure: Handled on an individual basis
Late assignments / extensions: Handled on an individual basis

Standards for academic honesty and penalties for infractions: All students are expected to work to the highest ethical, moral and academic standards.

5. Schedule

This 1-unit course consists of four sessions each four hours long. It is anticipated that the course will be offered twice during the Fall semester. The sessions are tentatively planned to take place on a Friday/Saturday from 9-1 for two successive weeks and will be held in the Cal Design Lab space on the 5th floor of Wurster.

Tentative calendar of topics and readings:

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<tr>
<th>Class</th>
<th>Time</th>
<th>Topic</th>
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| One    | 9am-1pm    | Course Overview
Design + Business convergence history and theory
Design Thinking, Critical Thinking, Systems Thinking
Design Core Skills
Process Module: Understand
Readings:
“Why Horst W.J. Rittel Matters,” by Chanpory Rith & Hugh Dubberly
“Learning from Studio,” by Clark Kellogg, Design Intelligence Knowledge Reports, January, 2006 |
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<thead>
<tr>
<th>Class</th>
<th>Time</th>
<th>Topic (continued)</th>
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<tr>
<td>Two</td>
<td>9am-1pm</td>
<td>Process Modules: Observe, Synthesize</td>
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<td>Readings:</td>
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<td>“Culture of the Charrette,” White Paper by Arnold Wasserman</td>
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<td>Business Model Generation, by Osterwalder &amp; Pigneur, Pages 123-173</td>
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<td>Speaker:</td>
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<td>Innovation Practices, Erika Gregory, President, Collective Invention</td>
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<td>Three</td>
<td>9am-1pm</td>
<td>Process Modules: Realize, Prototype 1</td>
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<td>Readings:</td>
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<td>Designing Interactions, by Bill Moggridge, MIT Press, 2007 (Ch 10)</td>
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<td>Indigo, A Case Study in Design Innovation, Steelcase</td>
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<td>The Ten Faces of Innovation, Currency Doubleday, by Tom Kelley, (Selections)</td>
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<td>Design Frameworks: Arnold Wasserman, Chairman, The Idea Factory</td>
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<td>Four</td>
<td>9am-1pm</td>
<td>Process Modules: Prototype 2, Analyze &amp; Feedback</td>
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<td>Readings:</td>
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<td>Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation, by Tim Brown, Harper Collins, 2009 (Selections)</td>
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**Dates for exams and written assignments:**

- **Class One:** Write Core Skills Reflection (submit online five days later)
- **Class Two:** Team Field Observation (do and bring to Session Three)
  - Inquiry Research (do and incorporate into Synthesis)
  - Team Synthesis Activity (do and bring to Session Three)
- **Class Three:** None
- **Class Four:** Concluding personal reflections essay/sketchbook

**Dates of special events:**

Session 4 will have a 4-person jury of expert outsiders to provide feedback to the students on team process and prototype project outcomes.
6. Statement of Accommodation
Per Department policy

7. Safety and Emergency Procedures
Per Department policy

8. Disclaimer
Per Department Policy