

ENGR 2200 - Evaluating Innovations: Fixtures, Fads, and Flops

Course Syllabus - Spring 2015

Instructor Information

Section	Location	Days	Instructor name	Email address
001	OLIN 203	Tuesdays and Thursdays 3:30-4:45	Dr. Sarah Grigg	sarahg@clemson.edu

Course Overview

ENGR 2200 Evaluating Innovation: Fixtures, Fads, and Flops: 3 credit hours

This course introduces foundational theories used to critically analyze the success of consumer products and other technological innovations. Case studies are utilized to exhibit the interactions between innovation and society. Critical thinking skills are emphasized.

Course Format

This is a Critical Thinking Seminar (CT2) that is designed to actively engage students in thinking deeply about the relationships between innovation and society. CT2 seminars are part of the Clemson University's Quality Enhancement Plan – more information can be found here: <http://www.clemson.edu/assessment/thinks2/>

Critical thinking is a process of thinking in a clear and systematic way in order to gain a deeper understanding of a system and make informed, unbiased judgments. To do so requires engaging in metacognition to reflect on your own biases and assumptions, and considering how you create knowledge. Critical thinking does not come naturally to most people; but through this course, we will work to improve your critical thinking skills which is instrumental to becoming successful entrepreneurs.

A significant portion of the course will be peer-lead discussions of various products or companies that have made a lasting impression on society. Special focus will be on scientific, technological, and engineering innovations and how societal factors impacted the success or failure of these innovations.

Student submissions of assignments will be collected and used to evaluate the effectiveness of this course and the Clemson Thinks² program in promoting critical thinking skills. These assignments will consist of critical analyses of case studies to evaluate the source in terms of intellectual standards and to determine the factors contributing to the success of an innovation using elements of critical thinking.

As part of this research effort, students are asked to complete the California Critical Thinking Skills Test (CCTST) twice during the semester, once at the beginning of the course and once at the end of the course. Students who do not want their work included in the research study should inform me at sarahg@clemson.edu by the end of the semester.

Office Hours / Communication Strategy

The best way to contact me is via email. I try to respond to emails quickly, but please allow 48 hours for responses. Use a descriptive subject line when sending emails, such as: "ENGR 2200- Meeting Request". Emails with subject lines containing the course number will be given priority and receive a faster response.

I would be glad to meet with you in person if you have questions, concerns, or need extra help. Please email me questions or to set up a one-on-one appointment, or stop by my office during my office hours.

Office location: M-08 Holtzendorff Email: (sarahg@clemson.edu)

Office hours: Mondays 10:00-11:30 and Wednesdays 1:00-2:30 or by appointment

ENGR 2200 - Evaluating Innovations: Fixtures, Fads, and Flops

Course Syllabus – Spring 2015

Course Content

Distribution of content coverage in this class include:

- **Critical Thinking – 20%**
 - Elements of reasoning
 - Intellectual standards
 - Heuristic Judgments
- **Foundational Theories for evaluating innovative technologies– 20%**
 - Product development
 - Product Life Cycle
 - Market/Situation Analysis
 - Hierarchy of human needs
 - Consumer Value
- **Case Studies – 25%**
 - Group discussions of scientific/technological innovations in select industry and consumer markets
- **Professional Communication – 20%**
 - Critical analysis of innovation and innovative technologies
 - Evaluate interactions between societal, businesses, and technological factors in product success
 - Objectively engaging in group discussions and group work
- **Course Mechanics and Assessment – 15%**
 - California Critical Thinking Tests (2)
 - Quizzes and Final Exam

Evaluation Plan/ Grade Distribution

- | | | |
|--|-----------|-----|
| • Quizzes | (2 @ 15%) | 30% |
| • Final exam | (1 @ 20%) | 20% |
| • Assignments | | 50% |
| • California Critical thinking pre and post test | | 5% |
| • Group Presentations | (3 @ 5%) | 15% |
| • Individual Critical Analyses | (6 @ 5%) | 30% |

Late Policy: Late work will not be accepted.

A=90-100

B=80-90

C=70-80

D=60-70

F=0-60

Critical Analyses of Scientific or Technological Innovations will be scored with the Critical Thinking VALUE Rubric located at <http://www.aacu.org/value/rubrics/pdf/CriticalThinking.pdf>. These assignments will serve as artifacts exhibiting critical thinking and will be used in the evaluation of the CT² program.

Course Requirements (Textbooks and Materials)

- Required Textbook:
 - Linda Elder and Richard Paul. 2012. The Thinker's Guide to Analytical Thinking. ISBN 978-0-944583-19-7
- Recommended Textbook:
 - Gerald M. Nosich. 2012. Learning to think things through: A guide to critical thinking across the curriculum 4ed. ISBN 978-013-7085-149
- Laptop
- Windows: Microsoft Office 2013 (Word, PowerPoint, Excel)

ENGR 2200 - Evaluating Innovations: Fixtures, Fads, and Flops

Course Syllabus - Spring 2015

Student Learning Objectives

The goals of this class are to improve critical thinking skills and understanding of how societal factors and innovation influence each other so that we can predict future trends.

Objectives	ABET
Employ critical thinking elements to formulate judgments of innovations success	b
Evaluate sources of information based on intellectual standards of reasoning	b
Utilize intellectual standards of reasoning to self-evaluate judgments	g
Understand the product development process	a, h
Research past and present scientific or technological innovations	b, k
Classify scientific, technological, and engineering innovations as fixtures, fads, and flops	b
Recognize disruptive technologies and their impact on society	h
Evaluate the impact of society and culture on product success or failure	h
Synthesize alternative solutions to multidimensional challenges addressed by scientific or technological innovations	b, k
Extrapolate information from case studies to make predictions for emerging technologies	j
Work in interdisciplinary teams to critically analyze product success	d
Communicate critical analyses effectively through in-class presentations	g

Documented Disabilities

Reasonable accommodations will be made for students with verifiable disabilities. You must present the official paperwork to the instructor at least one week prior to any activity for which accommodations are required.

Students should make an appointment with Disability Services to discuss their specific needs. Student Disability Services is located in the Academic Success Center building; phone: 864.656.6848. Please be aware accommodations do not carry over from semester to semester, and new Accommodation Letters must be presented each semester.