ORIGINS OF INNOVATION
STS 6614: Advanced Topics in Technology Studies

Time. Tuesdays, 9:15-11:45

Location. ICAT, Center for the Arts Building, Merryman Family Learning Studio II. Students will have additional access time to the ICAT Sandbox for course related activity

Instructor. Matt Wisnioski, Associate Professor of Science and Technology in Society and ICAT Fellow

Office. 331 Lane Hall and ICAT Sandbox

Office Hours. Wednesdays 2:00 to 4:00 in the Sandbox or by appointment

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Description
What is innovation? Where does it come from? What are its values? How are innovative careers made? Using collaborative student-directed inquiry, this seminar investigates how innovation has become the dominant organizing frame for knowledge work across the arts, design, engineering, and sciences.

The course is sponsored by the Institute for Creativity, Arts, and Technology (ICAT) and will count toward the Interdisciplinary Graduate Education Program in Human Centered Design (HCD-IGEP). We will apply the methods of Science and Technology Studies (STS). All these acronyms mean that we are uniquely positioned to take advantage of Virginia Tech’s most innovative and interdisciplinary spaces.

We have five specific pedagogical goals. They are:

- analyze the ideals and practices of “innovation”
- introduce future engineers, scientists, and designers to the STS toolkit
- improve team based skills (especially for STSers accustomed to solitary writing)
- immerse ourselves in sites and techniques of innovative technoscientific practice
- instill methods of self-reflection so that we can better understand our career paths in cultural, historical, and social context

More broadly, this is an opportunity for us to be “creative” and proactive in our learning in ways that traditional courses often unintentionally discourage.

Course Media
The seminar utilizes a variety of media including, books, articles, films, sounds, and artifacts. Because many resources will be selected by students, the initial assigned reading/media analysis is comparatively light (usually less than 100 pages a week). Everything will be accessible via Scholar or the web, with the exception of the following book which will be on reserve in Newman Library:


I also will create a repository of optional media resources to which all are welcome to contribute.
Requirements
Rather than a rubric of points and percentages, the course is based on the assumption that we are here because we are intrinsically motivated to learn and to create. This does not mean that we lack a framework or that anything goes. Below I outline the major required elements of the course. I will provide feedback informally and formally throughout the semester to help advance your individual career/research goals and to improve your group projects.

Participation. Active engagement is this course’s central feature. Participation means you must:
- collaborate with peers
- share frequently in small groups and in the seminar at large
- ask questions as an equal partner during seminar discussions
- be prepared with respect to readings, assignments, and group activities
- complete all tasks in timely fashion

Initiative. Students in the class bring unique skills and perspectives from disciplines across campus. It is not enough to hang back and fulfill obligations as if checking boxes off an imaginary chart. You need to utilize your strengths and help to envision and articulate the course’s direction and outcomes.

Weekly Assignments. Each week you will have tasks (sometimes individually and sometimes in groups) that vary from locating relevant resources to writing one-page essays, conducting micro-interviews, creating short presentations, etc. These are designed to enhance the conversation, to “scaffold” the group project, and to gain practice in a range of methods under low risk conditions so that you are more confident utilizing those methods in your larger projects.

Semester Group Projects. The course’s main “product” will be a group project that researches, contextualizes, analyzes, and provides a prominent public accounting of a local innovative activity. Students will work in teams of three to four and will draw on all means and methods at hand to complete this project. The broad rationale for and parameters of the assignment will be presented by ICAT director Ben Knapp and myself; the specific cases and form of delivery, however, will very much be up to you. Outcomes may include a multi-media installation; a web site; a textual document with direct benefit to the stakeholders you are analyzing; really, anything that you can imagine and execute. Significant class-time will be devoted to work on these projects, including assistance from visiting “experts.”

Other Elements
Equipment. We are positioned to get our hands on projectors, videos, 3D printers, laser cutters, etc. Don’t be shy to ask: “can we use X?”

External Work. I highly encourage you to draw on any parallel projects on which you are working that you think might contribute to the seminar conversation. I consider it part of my obligation as the course’s facilitator to offer feedback on them.

Failure. One of the most repeated axioms of innovation is: “fail often to succeed sooner.” Not everything we do will work smoothly; that is a feature, not a bug.
Schedule

I. Introduction
All readings + assignments should be completed before the weekly meeting under which they are listed.

August 27. What is Innovation? How can we study it?

September 3. Situated Learning and Critical Participation

□ Ben Knapp, ICAT director

September 10. The Contemporary Landscape of Innovation

o Identify and share one illustrative and insightful reading/video/etc. about contemporary innovation and write a brief (1 page double-spaced) analysis of that source.
o Come prepared to discuss project topics and preferences
□ half the session for project selection and team formation

II. Tools + Methods

September 17. Historical Origins

- In teams, turn one of this week's readings into a short video presentation (no more than 5 minutes long). You are required to read that source, Hirsh, and one additional item on the syllabus carefully; the rest can be skimmed. This is in part an experiment to see how well you can convey the essence of the readings that others have not done carefully.

  - Dale Winling and Purdom Lindblad, Digital Humanists

**September 24. What Makes Innovators?**

- Conduct a 20 minute interview of a classmate and produce one page of presentable dialog (or a short video of 3 minutes or less).

  - David Cline, Oral and Public Historian

**October 1. Observing Innovation in Practice**

- Do 30 minutes of observation and produce a page of presentable text from your notes.

  - Gary Downey, Alumni Distinguished Professor, founder of Engineering Studies

**October 8. Group Work on Semester Project**

**October 15. Maker Culture**

  - Maker Camp with Liesl Baum
October 22. Spaces, Institutions, and Ecosystems

October 29. Demonstrations I (Prototypes) + Group Project Work
Douglas Engelbart. 1968. “The Mother of All Demos.” (First 10 minutes) http://www.youtube.com/watch?v=yJDv-zdhzMY.
- Give short demos on different potential outcomes for your semester projects
- Troy Abel, Visual Communication Design, HCD director

November 5. Group Project Work

November 12. New Prototyping Technologies + Group Project Work
- Hands-on visit to the Implement Studio with Tom Martin, Electrical and Computer Engineering

November 19. Group Project Work

December 3. Demonstrations II (Fine Tuning) + Group Project Work

December 10. Group Project Work

Final Projects due December 19