



Learning Lab.

Empowering interdisciplinary
research engagements

The project team came together to form an interdisciplinary learning community and class structure for UIUC undergrads. With the support of the President's Office, the Fiddler Innovation Faculty Fellowship, Culture & Society at the NCSA, the Illinois Program for Research in the Humanities, and the Data & Society Institute, we're able to demonstrate a history of innovation across the arts & humanities and address the conditions of interdisciplinarity on today's campus.



[MACS265] Innovation Illinois - F19



Class time and location: Mondays 11-12:50P/Wednesday 9-10A - Computer Science Building, Room 1214 (105 W. Gregory Drive)

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Course Description

Where do transformative, world-changing innovations come from? How do they emerge? Who's behind them? What makes them transformative? Innovation Illinois introduces the histories of the varied, world-changing interdisciplinary innovations from the University of Illinois that bridged students and researchers in engineering, humanities, sciences and the arts. We will explore how local histories of Illinois innovations help us understand today's innovation trends and processes, from contemporary accessibility design and wheelchair sports and kneeling buses, to computer-composed music, online education, public media, and the first massively-used Internet browser. During the duration of the course, we'll work together in student teams that mix perspectives from different parts of our campus to imagine, research, and develop—via paper, multimedia, and code-based prototypes—future innovation ideas. We'll be introduced and get to experiment with mixed media resources and prototyping methods, spanning on and offline archives, digital editing, low and high-fidelity prototyping, and online data collection. We'll also visit campus sites and speak to key figures related to Illinois' world-changing interdisciplinary innovation histories and collaborations. Our work will culminate in a research project that surveys interdisciplinary practice on our campus, and explores innovation as a practice that necessarily emerges from creative innovation cultures that cross the arts, humanities, social sciences, and computer science.

Five Colleges Linked by Interdisciplinary Teaching Team



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FAA MFA 2019

As a course, Innovation Illinois was launched in the Fall 2017 in the Media and Cinema Studies Department, and serves as a touchstone for the foundation of an expanded learning experience that provides engagements with innovative research and creative practice methods on topics centered around innovation and technology.



This semester has been updated to integrate cross-disciplinary teaching teams and a focus summed up by the course's tagline: *From Accessible Design to Supercomputing Cultures*. It will enrich students' experience through interdisciplinary team work and collaboration, foster direct engagement with diverse campus sites, and engage alumni as mentors from STEM and Arts/Humanities fields who can address how their careers were shaped by the Arts and Humanities. Each student team will create projects through a demonstration of creative practice that will illustrate how students can use arts, humanities, and STEM research methods to prototype new innovations in the spirit of past case studies.



We focus on a context-based, socially-driven prototyping experience to:

1. Lay a foundation for students when they are developing academic/intellectual competence
2. Introduce fundamental artistic development, creative practice, and humanities research methods to students early in their careers
3. Establish rich interdisciplinary relationships that can shape student experiences well beyond their time on campus
4. Provide an interdisciplinary community between students, faculty, and staff that can serve as a basis for future undergraduate involvement in campus research projects.



“On the surface this effort might seem more centered on STEM fields than on the arts and humanities...however...it will take such areas of expertise to tell this university’s innovation story in a way that is inclusive, grounded in facts and values, and distinctive from other similar stories in a crowded media environment.

A recent National Academies study made broad recommendations for deeper integration of the arts and humanities in STEM education...though the study’s authors also struggled to point to evidence for their claims and recommendations. An education and communication effort like “Innovation Illinois” stands to bring new evidence in well-founded ways.”

- Kevin Hamilton, Dean of FAA



Challenges of Interdisciplinarity Today



1. UIUC graduates 2nd largest number of CS students, but they get little engagement outside of CS
2. Students aren't able to experience problem solving outside their own disciplines.
3. Although UIUC is a land grant institution with a long history of innovations with social impact, most students graduate without ever encountering this legacy of inclusivity and accessibility.
4. Interdisciplinarity fosters innovation, but it's increasingly difficult for faculty and students to reach across/outside departments.



1. Inter-disciplinarizing Engagement



Class is hosted in the CS Building, but our current students come from:

- Computer Science
- Fine and Applied Arts
- General Studies
- Journalism
- Information Studies
- Math
- Media Studies
- Psychology
- Spanish

Our pedagogy promotes student engagement, ensuring that they see diverse forms of leadership in the class and provide opportunities for meaningful engagement with each other.

Students can hear perspectives from different parts of campus, and are able to express and share their pride or frustration with other developments on campus.



2. Multi-Disciplinary Problem Solving



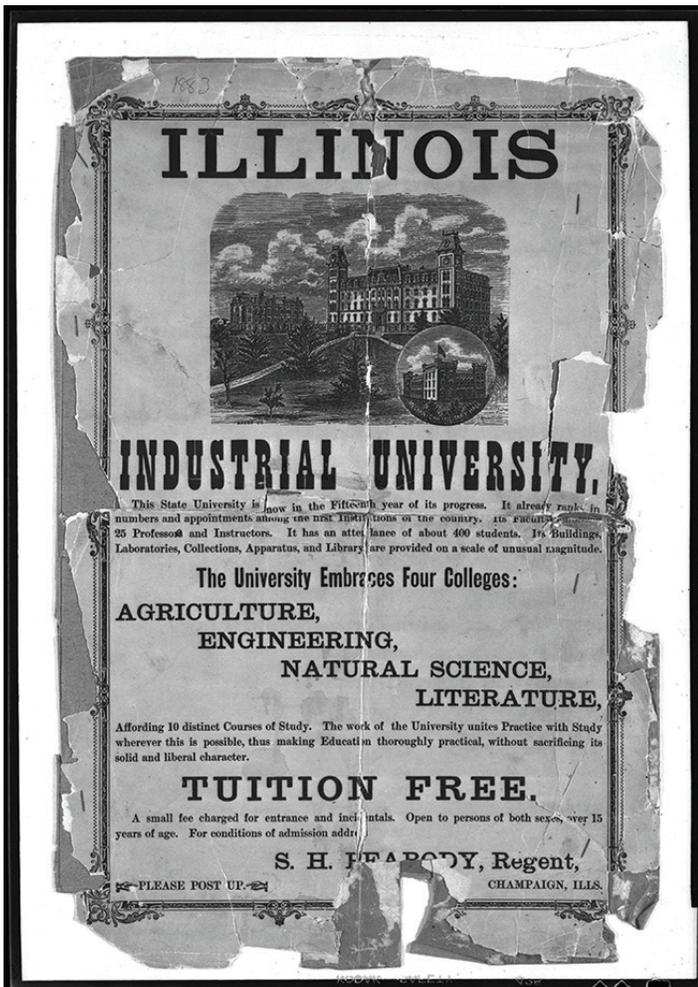
From early on in the class, students start to get to work together to define and explore common problems - and start to pool perspectives from diverse disciplines to ideate potential solutions.

One prompt we gave them was to map their typical day on campus and describe one favorite spot in their college, and one outside of it. By pooling those selections together, we asked them to see if they could see any consistencies in what defines students' favorite spots on campus – what's most useful and user friendly from a contemporary UIUC student's point of view? This is something relevant for the campus especially as it's in this new growth phase – which spaces are used, and how?

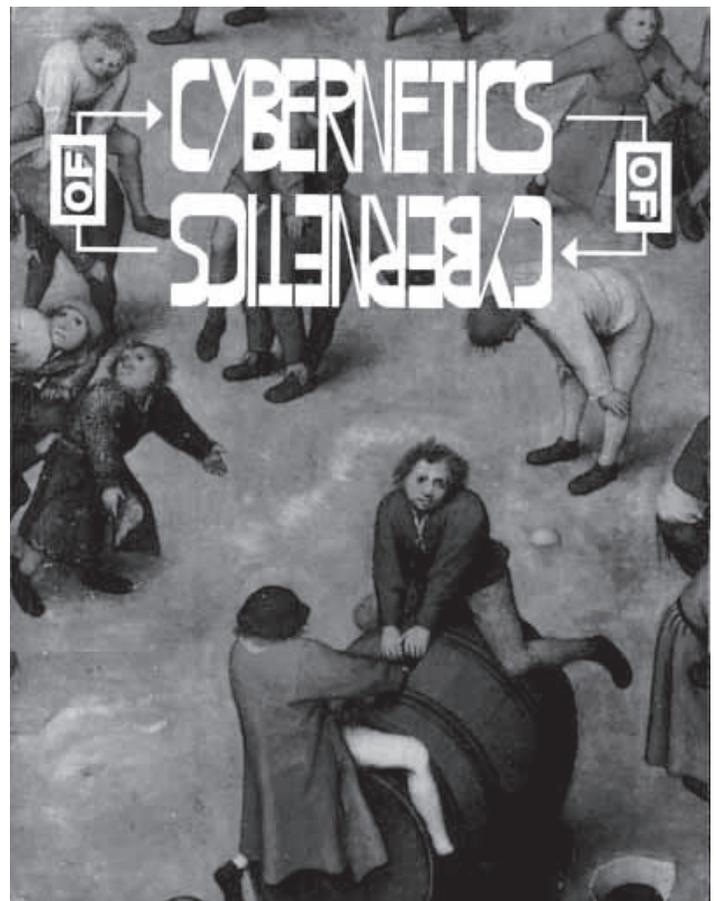


What progressive actions are embedded in UIUC's campus, and how do they persist today?

3. History of Inclusive Social Innovation



We also deepen explorations of UIUC's long history of interdisciplinary innovations that literally changed the world through inclusive and accessible design. The cases we explore show how innovations developed via social collaborations between STEM, humanities, arts & civic groups, demonstrating how one technology product alone didn't produce transformation, but how social innovation was necessary to enable transformations to occur over time and be sustained. This was true in the case of creating and empowering Landgrant models, DRES, PLATO, the BCL, Project 500, and many other University success stories.

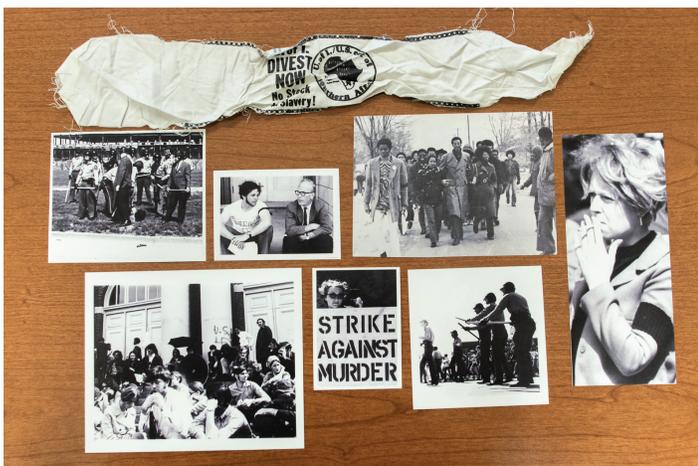


4. Sustaining Diverse Community



Clearly UIUC has long history of interdisciplinary innovation on the campus, but we worry these will be harder to reproduce as students and faculty becoming more “siloeD.” One of our solutions in the class is to intentionally enhance public engagement with students through:

- Regular site visits to campus archives and research and design hubs like DRES
- Participation in novel interdisciplinary events and spaces across campus (e.g. Radical Illini)
- Work with off campus civic and community partners
- This semester we are partnering with Cunningham Township, a unit of the City of Urbana that works with low income and below-the-poverty line families, and aims to develop a data-driven approach to end Homelessness in Urbana



“[T]he idea that on every seat there was a questionnaire, with questions like:

“How did the discussion promote my sense of community?”

“How did the speech cultivated [sic] my person[al] growth?”

It was nice to reflect on those questions and contribute to the development of YMCA through my answers.”

- Psychology

“Although these initiatives have made strides in progress for the Black student experience at UIUC, the work is not complete...students at the University of Illinois are still fighting for their rights from what was proposed from administration over 50 years ago.

[S]tudent organizations are continuously creating initiatives to push for diversity and inclusion on campus through educational programs, protests, and social gatherings.”

- Media

“I have not heard any promotion about this cultural center until this assignment... I didn't know they had a house dedicated for Asian American Culture. As an international student, I hope I was informed about this during my freshman orientation and had a...field trip to this ...special place.”

- Industrial Design

“They are both spaces that allow for an escape from the stresses of daily college life, places where you can sit for five minutes and just clear your mind, or spend an hour and reflect on where you are in life or see how others are living and how their experiences are similar or different to yours...It is easy to get lost in your class material and the other stresses in college student life, but by going to these spaces you are reminded that other people are living their own lives which are just as complex as your own or that while you spend hours trying to fix a bug in the basement of Siebel there is still a whole world of things going on outside of that computer lab.”

- Computer Science

“During the visit in the Fitness room...our guide said something that remained in my memory the whole day:

We are trying to look at the whole entire student, not only their academic life.”

- Psychology

“Although it looks like any other campus building on the outside, its interiors are lush with articles that represent the vibrancy of the different...communities and showcase the diversity of the community to its members and visitors.”

- Computer Science

We see opportunity to grow and sustain this project to the scale and ambition that every freshman across UIUC could enroll in the course, and be introduced to and immersed in the rich interdisciplinary history and contemporary resources available. We see potential to develop and scale out this pilot to a campus-wide project, where growth and future implementations could include:



- Expanding interdisciplinary teaching collaborations and expanding departmental and College-wide structures and relations for this and possible future courses
- Developing undergraduate teaching fellows from alumni of the course who can lend their mentorship/developing knowledge about campus resources to current cohorts
- Developing a student and alumni advisory board with diverse disciplinary representation
- Exploring potential course collaborations with the Siebel Center for Design
- Exploring potential course collaborations with the Discovery Partnership Institute, to deepen relations with Illinois arts and humanities institutions
- Contributing to research on the impact of Innovation in Liberal Arts and Humanities Education and Engaged Learning for 21st Century Universities
- Contributing to research on Interdisciplinary Learning Communities as an asset of Learning on the 21st Century University campus
- Contributing to research on assessment models for experiential education that could be developed with UIUC's Office of Undergraduate Research