COMPUTING, CULTURE AND SOCIETY

INDIANA UNIVERSITY PHD PROGRAM IN INFORMATICS

TRACK DIRECTOR: CHRISTENA NIPPERT-ENG, CNIPPERT@INDIANA.EDU

SUMMARY

Grounded in the Science and Technology Studies (STS) tradition, the Computing, Culture and Society (CCS) track focuses on the relationship between technological innovation and larger social, political, legal, and economic developments. From social media and artificial intelligence, gaming, domestic and workplace applications, little data and Big Data, to mobile technologies and giant server farms, computing technologies are a constant presence in our lives. The CCS track provides students with essential training in social scientific and humanistic theories, methods, skills, and knowledge. On this solid foundation, CCS students produce original research on the ways culture and society shape, reflect, challenge, and constrain the design and use of information and communication technologies around the world.

A highly interdisciplinary group, CCS faculty tackle a broad array of projects within this dynamic area of research. They draw on rich, multidisciplinary backgrounds in anthropology, cognitive science, engineering, history, information science, law, linguistics, music, political science, public policy, robotics, and sociology in order to do so. The faculty use a correspondingly wide range of methods in their work, including case-based, design, ethnographic, experimental, historical, survey, and visual methods. A reflection of their broad training and research interests, CCS faculty and their students often collaborate with faculty and students in other Informatics tracks as well as those in Computer Science, the larger university, and broader research communities. Most CCS faculty have adjunct appointments in their disciplinary departments at IU, as well. These include Anthropology; History; History and Philosophy of Science; Linguistics; Maurer Law School; and Sociology. The CCS track faculty play a large role in the STS group at IU and help sponsor the annual Gieryn lecture.

Current CCS faculty pursue projects that range from the local to the global, analyzing, for instance, the interactions between people and robots, the enacting of identity on and off line, the use of computing technologies to support communities and developing regions of the world, everyday privacy behaviors, gender and computing, the political uses of computing by nation-states, computing and intellectual property concerns, the ways scientists, YouTube, and Twitter users disseminate and consume information, and the impact of computing on the environment. For updates on faculty and student research projects, visit the Computing, Culture and Society group's website.

Nathan Ensmenger: History of computing; software labor and gender; environmental impacts of computing; history of artificial intelligence; organizational informatics.

Allison Fish: Information and technology law, intellectual property and the knowledge commons, authorship and invention, intangible cultural heritage, health information and expertise, transportation logistics and circulation of commodities, ethnographic methods, cultural anthropology, science and technology studies, socio-legal studies, socio-medical studies.

Eden Medina: Law, technology, and data; human rights and civil liberties; history of computing; history of technology; computing outside of the U.S. and Europe; science and technology in Latin America; the relationship of technology and politics.

Christena Nippert-Eng: Technology and: cognition, culture, science and knowledge; space and time; home and work; everyday life; symbolic interaction; social psychology; identity; gender; privacy; security; ethnography; design; social structure and animal behavior.

John C. Paolillo: Social aspects of Information and Communication Technology use, Internet multilingualism, online language variation, genre emergence, semantics of tagging, online interaction in forums, games, etc., quantitative and social network approaches to analysis.

Selma Sabanovic: Human-robot interaction, science and technology studies, social robotics, cross-cultural studies of technology, assistive technology, critical methods for designing and evaluating interactive artifacts, social studies of robotics.

Cassidy Sugimoto: Scholarly communication; scientometrics; science policy; public understanding of science; science communication; social media

REQUIRED COURSES

All required courses provided by faculty in the Computing, Culture and Society track, including I609 and I709, are open to and welcome students from other tracks and programs.

I609 – COMPUTING, CULTURE AND SOCIETY, ADVANCED SEMINAR I

This course is taught once every two years alternating with I709. The majority of the students are from the CCS track, but students from other tracks and programs frequently take this seminar.

Sample Recent Course Description

This graduate seminar introduces students to theory and research that conceptualize and study the intersections of culture, science, and technology from multiple disciplinary perspectives. We explore the approaches of science and technology studies, history of computing, and cognitive perspectives on science and technology, and design to understand

how culture and technoscience are co-constructed at different levels of analysis. Topics explored include the cultural construction of science and technology, scientific and organizational cultures, the politics of science and technology, technology and the self, culture in design, and gender in technoscience. Students also have the opportunity to apply these approaches to their own areas of research interest.

In the course, students develop and practice a variety of skills needed for graduate study and participation in the academic community, including: Critical reading and collegial communication: Critical engagement with an author's argument involves identifying the theoretical and methodological approaches (sometimes explicit, sometimes implicit, and sometimes both) in the work and discussing their strengths and weaknesses.

We consider further questions such as: What theoretical assumptions are made? What are the scope and scale of generalizations and their basis? How does this work relate and contribute to the continuing interdisciplinary academic discussion on culture, science and technology? etc. Problem-centered thinking and research: the study of technoscience and culture are interdisciplinary fields of inquiry, so our orientation in the course is likewise cross-disciplinary and problem-centered. Students learn to operate as interdisciplinary scholars, finding spaces between existing disciplines and crossing traditional disciplinary boundaries and identities to frame cultural critiques of science and technology and synthesize the course materials into original arguments. Synthesis of themes for individual research: In addition to learning about some of the different areas of research on science, technology, and culture, students also practice analytical and synthetic thinking skills by reflecting on and relating the materials we cover to bring them to bear on a problem of personal interest. This permits practicing the research skills of an interdisciplinary scholar. We also work together to develop a "cognitive map" of inquiry regarding culture, science, and technology, and to situate our own ideas within this map.

I709 – COMPUTING, CULTURE AND SOCIETY, ADVANCED SEMINAR II

This course is taught once every two years alternating with I609. Most students are from the CCS track but others frequently enroll in this seminar, too.

Sample Recent Course Description

This seminar course will introduce graduate students to core and emerging literature on the political and legal aspects of information technology. We will adopt an interdisciplinary view of the topic and will draw from the fields of law, science and technology studies (STS), history, anthropology, sociology, and computer science. This semester we will address such topics as Internet governance; the creation, maintenance, and regulation of information infrastructures; civil liberties and human rights; information technology and development including science policy; open data and governance; algorithmic regulation; intellectual property; and cyber warfare. These topics have been selected to provide students with an understanding of the issues involved in major policy areas that pertain to information technology. Students will have the opportunity to examine and explore relevant and influential research literature, methods, and theoretical frameworks and apply this knowledge to a topic of their choosing in a final paper. This seminar will provide the foundation for future doctoral work in social informatics. It is cross-listed with Maurer School of Law.

Goals:

By the end of this course, students will be able to:
1) Understand major political and legal issues that pertain to information technology and form educated opinions about key areas of technology policy.
2) Analyze and discuss representative literature on the political and legal dimensions of information technology.
3) Apply the theoretical frameworks, themes, and critiques presented in class in a final essay assignment.

ELECTIVE COURSES

In addition to required minor, research rotation, INFO (501, 502), and CCS (609, 709) courses, PhD students should expect to take a minimum of an additional 27 credits in elective courses and independent study work. At least four of these elective courses should be taken with CCS faculty, providing more targeted training. Recent elective offerings include the following:

INFO 590 Information Systems and Organizational Change (Ensmenger)
INFO 651 Ethnography of Information (Hakken/TBA)
INFO 528 Participatory Design (Hakken/TBA)
INFO 590 Geographies of Technology (Medina)
INFO 590 History of Technology (Medina)
INFO 590 Technology and the First Amendment (Medina)
INFO 590 Enacting Identity (Nippert-Eng)
INFO 590 Exercises in Ethnography (Nippert-Eng)
INFO 400/590 Privacy, Information and Identity (Nippert-Eng)
INFO 590 Social Media Research (Paolillo)
INFO 609 Cultural Perspectives on Science and Technology (Sabanovic)
INFO 502 Human-Centered Methods (Sabanovic)
INFO 440 Human-Robot Interaction (Sabanovic)

QUALIFYING EXAM, DISSERTATION PROPOSAL AND THESIS

CCS Qualifying Examination

All students take the CCS qualifying examination at the end of their second year. During the fall semester of the second year, each student works with the CCS faculty to assemble a qualifying examination committee consisting of three CCS faculty. The exam will be largely shaped, administered, and graded by this committee.

The qualifying exam consists of a written examination and an oral examination.

The written component has three parts: 1) an analytic-synthetic essay[1] required of all students, written in response to a question determined by the CCS faculty and based on authors' arguments found in the list of CCS Qualifying Examination Readings[2], 2) an analytic-synthetic essay addressing a question customized for the student according to their interests and based on a list of specialty readings within the CCS tradition, both of which are determined by the student and their three-person faculty examination committee, working in consultation with each other, and 3) one of three options intended to establish competence in appropriate research methodology -- either a) an analytic-synthetic review essay on how a particular concept, behavior, etc., is observed or measured using a variety of approaches, or, b) a methodological critique of a recent peer-reviewed journal article, or, c) an original, proposed research technique, methodology, or plan designed to answer a specific research question. The decision of which of these methodology components the student will address is also decided by the faculty examination committee and student working in consultation with each other.

The oral examination is given by the faculty examination committee and takes place after the written examination. It is approximately one hour in length. It provides both the student and the examination committee with an opportunity to further discuss the content of the written examination.

The qualifying examination is given to all second year students two weeks after the last day of Spring classes. The written questions are distributed on that Monday morning[3] and students have five days to complete the exam. Answers must be original, written independently, and submitted by that Friday at 5:00 PM. Faculty grade the exams over the next several days, prior to the oral examination. The oral examination commences according to scheduled appointments on the subsequent Wednesday. Students will be informed of their exam grade by the end of that week, just before the Memorial Day weekend.[4]

The student's faculty examination committee grades the qualifying examination, based on a combination of both the written and oral exams. Each part/question of the exam is assigned a grade of "pass," or "fail." Students must receive the grade of "pass" on all three parts of the exam in order to progress in the PhD program. Students who fail one or more parts of the exam are deemed unqualified to continue in the program. Students who do not pass the exam are entitled to one opportunity to revise and re-submit their answers to their faculty exam committee

---

[1] Analytic-synthetic essays are built on careful readings of others' claims (this is the analytic part) as well as the essay writer's observations/claims about those claims (this is the synthetic part). Analytic-synthetic essays demonstrate mastery of existing domain knowledge by demonstrating understanding of individual scholars' works as well as how a body of works relate to each other.

[2] This is a list developed by the faculty consisting of general CCS-related readings. It is an on-going endeavor, available to all students. The version available at the start of their second year of studies is the version on which students will be tested during their qualifying exam.

[3] For some questions, of course, this is only a formality. A student will already know at least one of the questions on their exam (#2) prior to this date, and will already have been working on their answer to it throughout the semester. Depending on what has been decided with their examination committee for question #3, it is possible that a student will encounter only one new question on this Monday morning when the exam questions are officially released (i.e., Q #1).

[4] For example, during the Spring 2016 term, classes ended on Friday, April 29th. The qualifying exam would have been distributed to second year PhD students at 9:00 AM on Monday, May 16th. Students would have had until 5:00 PM on Friday, May 21st to complete the exam. Each student would then meet with the faculty for their oral exam for one hour on Wednesday, May 25th. Students would receive notification of their exam grades by Friday, May 27th.)

for reconsideration. Revised answers must be submitted by the end of the summer, so that the committee can grade them and inform the student of the outcome before the fall term begins.

Timeline:

Student's 2nd year of study

End of October	Faculty Examination Committee set
End of Fall term	Questions 2&3 set
Monday, two weeks after the end of the Spring semester	Questions released to cohort
Friday, 5PM, two weeks after end of the Spring semester	Answers due
(Grading commences immediately)	
Next Wednesday, by appointment	Oral exams take place
Friday of Memorial Day weekend	Students notified of results

TYPICAL MINORS

CCS students are required to take a minor and they have declared a wide range of them so far in order to supplement their training. There is no typical minor, as there is no typical dissertation topic in this track. However, students have so far enjoyed minors in Methods of Inquiry, African Studies, Latin American Studies, and Gender Studies, to name a few. Our students frequently take single elective courses in other departments at IU as well, taking advantage of IU's excellent offerings across the campus -- especially those in the social sciences and humanities. Where fieldwork requires it, students are also likely to take substantial coursework to acquire necessary language skills.

SAMPLE DISSERTATION TITLES

Knepper, Richard	Shifting Modalities of Use in the XSEDE Project (May 2017)
Nemer, David	Rethinking Digital Inequalities: The Experience of the Marginalized in Community Technology Centers (August 2015)
Park, Dong-oh	Digital Nation-Building: Interaction Between Technology and Policy of the Digital Identity Infrastructure in Korea (July 2016)
Terrell, Jennifer	Constructing Rooms of Requirement: Transmediation and the Ethnography of Harry Potter Fans (July 2015)

SAMPLE CURRICULUM

The following is a sample three-year curriculum. Students should consult with their advisors in order to select courses that will best support their plans of research. Courses in **bold** meet the minimum CCS PhD requirements. Additional courses may be necessary to fulfill the student's minor or other programmatic choices.

Year	Fall Semester	Spring Semester
One	**I501**	**I502**
	CCS elective 1	**I609**
	CCS elective 2	**Minor Course 1**
Two	**CCS elective 3**	**I709**
	CCS elective 4	**Research Rotation 1**
	Minor Course 2	**Minor Course 3**
Three	**Research Rotation 2**	Elective/Independent Study
	Elect/Indep Study/Minor 4	Elective/Independent Study
	Elect/Indep Study/Minor 5	Elective/Independent Study