Who Should Take This Course
You should take this course if you want to learn about the role that information and communication technologies (ICTs) play in modern work. We'll investigate how ICTs shape work and are shaped in turn by the individuals who use them. This knowledge is critical for understanding people’s reactions to new technologies at work; it is also essential for preparing for the radical transformations that often accompany technological change. The course involves substantial reading and discussion. You will also practice in class, and carry out beyond it, qualitative fieldwork techniques for data collection (interviewing, observation) and data analysis (coding, memoing). In short, the course offers a mix of individual study, in-class activities, individual or group presentations, fieldwork, original research, and class discussion that provides multiple ways for you to engage with the material.

LEARNING OUTCOMES
In addition to learning about the role that ICTs play in modern work, you will also
- Learn to draw insights for the design of modern organizations and technologies
- Gain skills in qualitative data collection, including interviewing and observation
- Gain skills in qualitative data analysis, including coding of field notes and memoing
- Practice and improve your teamwork skills, if you desire
- Hone your presentation skills
- Strengthen your research skills by reading and discussing studies in a body of literature
- Develop your ability to bridge the gap between theory and practice by investigating and analyzing the role of ICTs in a current occupation

OVERVIEW
We will examine together the relationship between technology and work in the particular context of six cases. Four cases are contemporary: (1) diagnostic and surgical tools in medicine, (2) ICTs in reference librarianship, (3) ICTs in automotive engineering design, and (4) ICTs in science. One case is historical: (5) early automation and IT in offices. One case spans a century to provide both historical and contemporary lessons: (6) computers and programmers. You will investigate technology and work in a seventh setting: an occupation of your choice. Through these cases we will come to understand why the study of work is essential for the design of ICTs and why an understanding of ICTs is critical for designing modern work and modern organizations. Much of our interest will be in examining the occupational changes that often accompany technological change. For this reason, we will pay special attention to issues of status, power, hierarchy, roles, domain knowledge, workforce shifts, and the like.
COURSE POLICIES

Attendance and Participation
You are expected to attend every day and to have completed the reading and any assignments so that you can actively engage in discussions. Poor attendance and participation will lower your grade.

Grading
Individual component weights in final grade:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Book Verbal Presentation</td>
<td>15%</td>
<td>(individual)</td>
</tr>
<tr>
<td>Book Written Summary</td>
<td>20%</td>
<td>(individual)</td>
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<tr>
<td>Project Verbal Presentation I</td>
<td>15%</td>
<td>(individual or group)</td>
</tr>
<tr>
<td>Project Verbal Presentation II</td>
<td>25%</td>
<td>(individual or group)</td>
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<tr>
<td>Project Paper</td>
<td>25%</td>
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Participation and attendance may shift a grade up or down.

Late Work Policy
Some work cannot be late because the class depends on your contribution on that day. Verbal book presentations and verbal project presentations cannot be late; you will lose full credit if you are not ready when they are due. For your book written summary and your project research paper, you will lose half a grade if you fail to hand them in when due. If the work is not handed in within 48 hours, you will lose another half a grade, and so on for every 48 hours additionally late. No summaries or papers will be accepted more than one week late.

University of Texas Honor Code
The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community. Source: [http://www.utexas.edu/welcome/mission.html](http://www.utexas.edu/welcome/mission.html)

Documented Disability Statement
Any student with a documented disability who requires academic accommodations should contact Services for Students with Disabilities (SSD) at (512) 471-6259 (voice) or 1-866-329-3986 (video phone). Faculty are not required to provide accommodations without an official accommodation letter from SSD.

- Please notify me as quickly as possible if the material being presented in class is not accessible (e.g., instructional videos need captioning, course packets are not readable for proper alternative text conversion, etc.).
- Please notify me as early in the semester as possible if disability-related accommodations for field trips are required. Advanced notice will permit the arrangement of accommodations on the given day (e.g., transportation, site accessibility, etc.).
- Contact Services for Students with Disabilities at 471-6259 (voice) or 1-866-329-3986 (video phone) or reference SSD’s website for more disability-related information: [http://www.utexas.edu/diversity/ddce/ssd/for_cstudents.php](http://www.utexas.edu/diversity/ddce/ssd/for_cstudents.php)
REQUIRED COURSE MATERIALS

Texts (all students)
5. One additional book per student, see Book Presentation and Summary, below, for instructions and the list of texts at the end of the syllabus for selections.

Other Required Reading
A number of journal articles are also required; you can find copies on the Blackboard website.

ASSIGMENTS AND PROJECTS

Book Presentation and Summary
You will read one additional text over the course of the semester beyond the ones listed in the course schedule below. You will prepare a verbal presentation and a written summary of the book. The verbal presentation shall be no more than FIVE minutes in length, with no slides or handouts, and will be given in class during the appropriate week. The purpose of the verbal presentation of the book is to help your classmates better understand the week’s topic by providing the major insights of the additional reading and situating those insights with respect to what the class read. The written summary of the book should be no more than five pages in length. The purpose of the written summary is to convey to me your ability to read new material and integrate it with our class readings in a way that extends your understanding of the topic. Your verbal presentation and written summary should include the main thesis of the book with an analysis of how the book complements or opposes other readings for the week. You must choose from among the texts listed at the end of the syllabus unless I approve an alternative text of your choice.
Project: Study of a Particular Occupation of Your Choice

You will work alone or in small groups to research an occupation of your choice. Your goal is to develop a rich, thorough depiction and analysis of ICTs and work in the context of this occupation. Plotting the course of work and technology over time, thus providing historical as well as modern-day accounts to trace change, would be one good strategy, but not the only one. I expect you to learn about the occupation through interviews, site visits, observations, newspaper articles, movies, books or other sources. We will discuss in class my expectations of the amount of field data you should gather based on group size.

You will verbally present your preliminary findings and pose a question to the class in class Week 10. You will do your final presentation either Week 13 or 14, depending on how I assign groups. You will submit a paper the last day of class.

Project Verbal Presentation I. This verbal presentation may feature Powerpoint slides, videos, and other media as appropriate to convey your preliminary findings. The purpose of this presentation is to let us know where you stand and for you to seek our advice for any problems you may be experiencing as you think about your data. Although this is a “working” session, I expect a polished, not incomplete or rough, presentation aimed at helping us understand your data well enough to offer valuable help. If you worked in a group, this is a group presentation, with all members speaking for nearly equal durations.

Project Verbal Presentation II. This verbal presentation may feature Powerpoint slides, videos, and other media as appropriate to convey your findings. I value creativity, clarity, logical progression of ideas, helpful visual aids, depth of thought, and thoroughness of research. The purpose of the presentation is to provide the class with an informed, in-depth understanding of the role of ICTs in the occupation you studied. If you worked in a group, this is a group presentation, with all members speaking for nearly equal durations.

Project Paper. Papers – roughly 3,000 words minimum, excluding references – should evince rigor in data collection and analysis and should follow formal standards of writing, not journalistic, web-based or otherwise casual or informal standards. The purpose of the written paper is to convey to me your ability to interpret and apply the knowledge of technology and work that you gained in this class in the context of the occupation that you studied. Please do not attempt to write a paper that discusses the specific application of all the material covered in this course, as that effort will quite likely exhaust both of us. Even if you worked in a group, this is an individual paper and should not share its text in whole or in part with the papers of your teammates.
**CLASS SCHEDULE**

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**Week 1 Thursday 1/19**

**Introduction**
What is technology? What are information and communication technologies (ICTs)? What is work? Examples of technology at work. Outdated notions of technology and work. Discussion of syllabus. Getting to know each other and brainstorming occupations for your course project.

**Reading:** Barley and Kunda, Bringing Work Back In (Blackboard)

**Discussion:** How does work shape us, what does it mean to us? What images of work did we garner in childhood from parents and others? What role has technology played in shaping our image of workers? For example, do you have higher status if you work with technology that is advanced as compared with people who work with basic or low-end technologies?

**In-Class Assignment.** You will select your choice of text for presentation and summary.

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**Week 2 Thursday 1/26**

**Case 1: Diagnostic and Surgical Tools in Medicine**
Studies of the introduction of new technologies for diagnosis and surgery in medicine highlight how differences in the implementation of a technology may contribute to different effects on occupational roles, occupational status, and the social dynamics of work. New technologies also have the potential to drastically alter the global distribution of the medical workforce via the transmission of digital artifacts. These first readings and our discussion will set up for us a number of themes with which we will grapple over the course of the semester, including occupational change, workforce change, technological determinism (and its rebuttal), deskilling and reskilling, structuration theory, and globalization.

**Reading:** Edmondson et al., Disrupted Routines (Blackboard)
Levy and Goelman, Offshoring and Radiology (Blackboard)
Stack et al., The Offshoring of Radiology (Blackboard)
Jarvis and Stanberry, Teleradiology: Threat or Opportunity? (Blackboard)

**Presentation:** Selected student presentations of additional reading.

**Discussion:** What does the work of Edmondson and her colleagues tell us with respect to technological determinism? What lessons about implementation do we gain? Why is teleradiology possible? What are its implications for radiologists, physicians who treat patients, and patients?
**Week 3 Thursday 2/2**

**Basic Qualitative Data Collection Techniques in Interviewing and Observation**
We'll cover what you need to know to collect the empirical data for your class project. In addition to covering techniques for effective interviewing and observing of informants, we will also discuss ethical issues in qualitative data collection as well as technological aids and choices in the field.

*Reading:* Emerson et al, *Writing Ethnographic Fieldnotes*, chapters 3-4
Weiss, *Learning from Strangers*, chapters 3-4

*Exercise:* We’ll practice in pairs to get you comfortable with the mechanics of interviewing and observation.

**Week 4 Thursday 2/9**

**Case 2: ICTs in Reference Librarianship**
Electronic databases, chat systems, IM and a host of other ICTs have transformed the work of reference librarians. I will present work by UT iSchool students who investigated reference work.

*Reading:* Sample of Fieldnotes (Blackboard)
LeMaistre et al., *Role Reinvention, Structural Defense, or Resigned Surrender* (Blackboard)
Childers, *The Future of Reference* (Blackboard)
Harmeyer, *Reviving the Reference Interview* (Blackboard)

*Presentation:* Selected student presentations of additional reading.

*Discussion:* What positive changes have occurred in the wake of advanced ICTs in librarianship? If an institutional argument is correct, what are the implications for new graduates?

**Week 5 Thursday 2/16**

**Case 3: IT in Office and Service Work**
Technological change and the transformation of clerical and service work. History of early offices, impact of office automation, effect of IT, impact of scientific management, and labor process theory.

*Reading:* Garson, *The Electronic Sweatshop*
Braverman, *Clerical Workers* (Blackboard)

*Presentation:* Selected student presentations of additional reading.

*Discussion:* How do workers react to changes in their jobs coincident with new computer technologies? Is deskilling the only outcome?
**Week 6 Thursday 2/23**

**Basic Qualitative Data Analysis Techniques**

We’ll cover what you need to know to analyze the empirical data you are collecting for your class project, including how to code your field notes and transcripts, how to identify themes, how to ensure consistency in coding, and how to combat salience by establishing frequency.

*Reading:* Barley, Technicians in the Workplace (Blackboard)
Emerson et al, *Writing Ethnographic Fieldnotes*, chapter 6

*Exercise:* Bring in selections from your interview and/or observational data so that you can begin analyzing it with techniques we cover in class.

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**Week 7 Thursday 3/1**

**Case 4: Computers and the Rise of Programmers**

How the invention and spread of computers led to a new occupation, computer programmer, whose rise elicited consternation among organizational actors whose dominions were threatened. How formal education socializes programmers to behave the way they do. The role of IT artifacts in programming.

*Reading:* Ensmenger, Letting the Computer Boys Take Over (Blackboard)
Ensmenger and Aspray, *Software as Labor Process* (Blackboard)
Garvin-Doxas and Barker, *Communication in Computer Science Classrooms* (Blackboard)
Howison and Crowston, *Collaboration through Superposition* (Blackboard)

*Presentation:* Selected student presentations of additional reading.

*Discussion:* What aspects of the technology lent power to programmers? What role did technology play in organizational politics?

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**Week 8 Thursday 3/8**

**Field work**

No class this week. You should devote yourself to your data collection and preliminary analysis.

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SPRING BREAK
Week 9 Thursday 3/22

Case 5: Software, IT, and (Big) Science

Technology in scientific work, particularly in supporting collaboration.

Reading: Hine, Databases as Scientific Instruments (Blackboard)
Howison and Herbsleb, Scientific Software Production (Blackboard)
Kraut et al., Patterns of Contact and Communication (Blackboard)

Presentation: Selected student presentations of additional reading.

Discussion: How do scientists work and how/why, in particular, do they communicate? How do scientists communicate and coordinate across time and distance? How does IT facilitate remote scientific collaboration, and what problems arise in its use?

Week 10 Thursday 3/29

Presentation of Preliminary Findings and Puzzles (Verbal Presentation I)

Each group will briefly present what they have found thus far, what puzzles or challenges they face, what themes they suspect are in their data. Each group should come with at least one question for the class in terms of a request to help frame an issue, select the most interesting avenue among several options, resolve a methodological dilemma, or some similar problem. Class will provide comments.

Week 11 Thursday 4/5

Putting it All Together: Theories of Work and Technological Change

Leading scholars in technology and work attempt to place research into perspective and shape the course of future studies.

Reading: Wood, The Deskilling Debate (Blackboard)
Orlikowski, The Duality of Technology (Blackboard)
Orlikowski and Iacono, Desperately Seeking the “IT” in IT Research (Blackboard)
Leonardi and Barley, Materiality and Change (Blackboard)

Presentation: Selected student presentations of additional reading.

Discussion: What makes IT artifacts difficult to study and think about theoretically? What kinds of theories of work and technology do we want? What is it that we want to understand and possibly to predict? How can we understand our case studies in the context of today’s papers?
Week 12 Thursday 4/12

Case 6: Automotive Engineering Design

Changes over time in ICTs employed in engineering design and analysis. Impact on organization of engineering labor and the global distribution of the engineering workforce. Implications for sharing knowledge and artifacts over distance.

Reading: Leonardi and Bailey, Transformational Technologies (Blackboard)
Bailey, Leonardi, and Barley, The Lure of the Virtual (Blackboard)

Discussion: What role does the physical play in an increasingly virtual work world? What information do physical and digital artifacts hold and convey? How does work change as we go from working with physical objects to working with representations of physical objects?

Weeks 13 & 14 Thursday 4/19 & 4/26

Presentation of Findings and Conclusions (Verbal Presentation II)

Students present their analyses and findings based on their occupational studies of technology.

Week 15 Thursday 5/3

Looking Ahead: The Future of Technology and Work

With computers ubiquitous in the workplace and ICTs connecting distant sites with ease, what does the future hold for American workers and for the global workforce? I will share stories, thoughts, and preliminary findings from research I am doing in Brazil on how remote grocers use IT to become bankers. We will discuss the predictions of futurists.


Discussion: Futurists tend to paint a bleak picture for the future of work in the face of technological advance. Reflecting on what we have learned this semester, consider why futurists’ predictions might prove false and what hope there may be for American (and global) workers in the face of new technologies in the workplace.

Due: Project paper on occupation that you studied.
TEXTS FOR BOOK VERBAL PRESENTATIONS AND WRITTEN SUMMARIES

Diagnostic and Surgical Tools in Medicine

Reference Librarianship

IT in Office and Service Work

Computers and the Rise of Programmers
Software, IT, and (Big) Science