

**TECHNOLOGY AND SOCIETY**  
**SOCIOLOGY 166**  
**Spring 2012**  
*Dr. Timothy King*

Time: **Wednesday 3:00-6:00PM**  
Location: **120 Latimer**  
Office Hours: **after class**  
Email: **tim.king.phd@gmail.com**  
Final Exam: **Wednesday, May 9, 7:00-10:00PM**

This course will focus on the relationship between society and technology from a social sciences perspective. This course will provide students with an understanding of how technology has influenced society and social change, how technologies vary among societies and cultures, and how a society can foster (or hinder) its own technological development. This course will focus on current technologies and their impact on modern societies; in particular, we will look at the relationship between “new technologies” and modern societies: cellular phones, home computers, the internet, Western medicine, advanced weapons technologies, and transportation. This course will also provide examples of technology across the ancient world to illustrate the societal impact of certain significant technologies: writing, metallurgy, agriculture, animal domestication, currency, ceramics, watercraft, and gunpowder.

**Course Requirements:**

1). **Lectures:** Class attendance is essential to passing this course – missing more than 3 class sessions will result in a failing grade. If serious or significant reasons require a student to miss a class session, proof of reason for absence must be provided and students must notify me in advance (if possible) if they expect to miss a class session. It will be the responsibility of the student to contact me (during office hours) to collect any assignments or course materials they have missed due to absence.

2). **Required Readings:**

Readings will be assigned at the end of each class session. Additional readings (articles) will also be provided.

- Rogers, Everett. *Diffusion of Innovations*, 5<sup>th</sup> ed. Free Press (2003).
- Volti, Rudi. *Society and Technological Change*, 5<sup>th</sup> ed. Worth (2006).
- A number of articles will be provided and assigned each class session

3). **Exams:** A midterm exam and a final exam will constitute 70% of the course grade (35% each exam). These examinations will test student understanding of in-class materials and the homework reading assignments.

4). **Assignments and Projects:** 30% of the course grade will be from group homework assignments and a term project, which will assigned and discussed in class.

5). **Academic Integrity:** The University's policy on academic honesty will be strictly enforced. In other words, cheating in any form can be grounds for failing the entire course. Including material from elsewhere and presenting it as your own work is not permissible. All quoted text or graphics must be submitted with full citation. Text and graphics taken from the internet must be cited with a full URL reference.

6). **Grading and Assessment:**

Midterm Exam: 35%

Final Exam: 35%

Assignments and Projects: 30%

7). **Performance Quality:** Your grade on assignments and exams will be based upon your knowledge and understanding of course and reading materials, and your competence in applying these materials to your work and class discussions.

This schedule may be subject to change or revision, brief PDF readings will be assigned in class.

### **SESSION 1 (Wed Jan 18) – COURSE INTRODUCTION and OVERVIEW**

In this class session, students will be introduced to course materials, we will review the syllabus, and we will look at the nature of technology and its impact on the social world, and how the social world affects technologies. We will look at "fundamental technologies" - the materials all people need to survive - and the technologies in our own lives.

### **SESSION 2 (Wed Jan 25) -- SOCIAL COMPLEXITY and TECHNOLOGY**

In this session, we will examine the current "Global Digital Divide" – the differential access to information and communications technologies, and how access to resources affects innovation and rates of diffusion. We will review of Elman Service's stages of social complexity: the relationship between social complexity and technological innovation, economy, craft specialization, and population size – how these factors have historically affected the development and diffusion of technologies.

**reading: Volti CH2** (pp.19-35) "Winners and Losers: The Differential Effects of Technological Change"

### **SESSION 3 (Wed Feb 1) – THE NATURE OF DIFFUSION**

In this class session, we will examine the nature of technological diffusion, how materials diffuse at different rates and how different groups adopt technologies at different rates.

**reading:** Rogers CH1 (pp. 1-35) “Elements of Diffusion”

**reading:** Volti CH5 (pp.75-92) “The Diffusion of Technology”

**reading:** Rogers CH8 (pp.300-362) “Diffusion Networks”

#### **SESSION 4 (Wed Feb 8) – THE NATURE OF INNOVATION**

In this class session, we will examine the nature of innovations - what characteristics make an innovation more adoptable, what kinds of people innovate, what kinds of people are "early adopters."

**reading:** Rogers CH6 (pp.219-265) “Attributes of Innovations and Their Rate of Adoption”

**reading:** Rogers CH4 (pp. 136-166) “The Generation of Innovations”

#### **SESSION 5 (Wed Feb 15) – ARTIFICIALLY SOCIAL: ROBOTICS**

In this class session, we will examine our current and future relationships with artificial intelligence. We will examine the “Frankenstein Complex” and Masahiro Mori’s “Uncanny Valley” – as robots look and behave more like us, the more unsettling they become. We will also address ethical concerns about the use of robots in warfare, the perceived hazards of artificial intelligence, and deception as an adaptive behavior in A.I.

**reading:** TBA

#### **SESSION 6 (Wed Feb 22) – EVOLUTION and TECHNOLOGY**

In this class session, we will examine the nature of technology through the lens of evolutionary models - can technologies be understood, and predicted, through evolutionary models: facing selective regimes, Lamarckian Evolution, differential fitness, etc.

**reading:** Volti CH1 (pp.3-17) “The Nature of Technology”

#### **SESSION 7 (Wed Feb 29) – MIDTERM EXAMINATION**

#### **SESSION 8 (Wed Mar 7) – TECHNOLOGY, RATIONALITY, and SCIENCE**

In this class session, we will examine the nature of "technologically progressive" and "technologically conservative" societies - how societal norms affect the way in which a society develops and adopts technologies.

**reading:** Rogers CH5 (pp. 168-216) “The Innovation-Decision Process”

**reading:** Volti CH3 (pp. 39-56) “The Sources of Technological Change”

**reading:** Volti CH4 (pp.58-72) “Scientific Knowledge and Technological Advance”

#### **SESSION 9 (Wed Mar 14) - TECHNOLOGY and THE HUMAN BODY**

In this session, we will examine the relationship between the human body and technology: medicine, prosthetics, birth control and fertility, stem cell therapy, eugenics, and "trans-humanism" – when the line between human and non-human may blur.

**reading:** Volti CH16 (pp.303-318) “Technology and Its Creators: Who’s in Charge of Whom?”

**reading:** Volti CH18 (pp.339-354) “Governing Technology”

#### **SESSION 10 (Wed Mar 21) – TECHNOLOGY, INFORMATION and LITERACY**

In the class session, we will examine the history and current uses of information storage and communication. We will examine how the Internet has affected the communication, publication, and moderation of information at a global level. We will examine how writing and literacy affects the technology and sciences of a society, and how literacy and publishing provide a significant advantage in competitive environments.

**reading: Volti CH13** (pp.224-249) “The Electronic Media”

**reading: Rogers CH11** (pp. 436-468) “Consequences of Innovations”

### **WEDNESDAY MARCH 28 - SPRING RECESS**

#### **SESSION 11 (Wed Apr 4) – TECHNOLOGY, COMPETITION, and WARFARE**

We will examine the strong relationship between technology, competition, and warfare – how competition motivates innovation and technological development. And how the competition of warfare can accelerate technological and social change, as an adaptation to potential threats. We will examine the Cold War “Space Race” between the U.S. and Soviet Union, and the impact this competition had on many modern technologies – and we will examine how the modern “X-Prize” has revolutionized private spaceflight. We will also examine how adaptation of weapons technologies has affected warfare in developing nations.

**reading: Volti CH14** (pp.255-270) “Weapons and Their Consequences”

**reading: Volti CH15** (pp.273-297) “How New Weapons Emerge”

#### **SESSION 12 (Wed Apr 11) – GREEN TECHNOLOGY and "MAKER-CULTURE"**

In this session, we will examine the expanding American “DIY/Maker Culture” – how technological innovations are not coming from large research institutions, but from the garages and home laboratories of “Makers.” We will examine the rise of “Maker Culture” and the social consequences of private (rather than corporate/commercial) technological innovation. We will examine the rising trend in home-made “3-D printers” and the Bay Area “Maker” phenomenon.

**reading: Rogers CH7** (pp. 267-297) “Innovativeness and Adopter Categories”

#### **SESSION 13 (Wed Apr 18) – THE FUTURE and (MIS)PERCEPTIONS of TECHNOLOGICAL CHANGE**

In this class session, we will examine how past predictions of technological change and innovation often failed to account for social factors. We will address Moore’s Law of computing development, and Vinge and Kurzweil’s “Technological Singularity” – when advances in technology that affect intelligence will make predictions of later technologies (and their rate of innovation) much harder to predict. We will examine Thomas Kuhn’s model for technological and scientific “paradigms” and the nature of technological revolutions. In this class session, we will address how social factors can help to shape predictive models.

#### **SESSION 14 (Wed Apr 25) -- REVIEW for FINAL EXAMINATION**

We will review all course materials to date, in preparation for the final examination.

**FINAL EXAM - Wednesday, May 9, 7:00-10:00PM**

