

TELECOMMUNICATIONS NETWORKS  
T322 SECTION 4415  
Fall 2000

Instructor: Harmeet Sawhney  
Office: Radio & TV Center, Rm. # 325  
Phone: 855-0954 / E-Mail: HSAWHNEY

Office Hours: Tuesdays, 2:00 - 4:00  
and by appointment

Course Meetings: Mondays and Wednesdays, 9:30 - 10:45 am, TV 226

---

COURSE DESCRIPTION

This course provides an overview of the development of telecommunications networks in the United States. Their development is studied along the following three dimensions: (i) the basic technology, (ii) business and economics, and (iii) public policy concerns and social impact. The study of telecommunications networks-specific issues is placed within the larger context of the information age and the convergence of information technologies. The effort is directed towards generating a holistic understanding of the technical, business, and social aspects of telecommunications technologies.

TEXTS

Brock, G. W. (1994). *Telecommunication policy for the information age*. Cambridge, MA: Harvard University Press.

Readings kept on reserve at the SPEA / Business Library.

COURSE GRADE

The relative weights of the different components of the final grade will be as follows:

Midterm Exam	15%
Final Exam	20%
Exercises / Quizzes	15%
Papers / Projects	45%
Class Participation	5%

Examinations: The examinations will consist of short answer questions which will test your understanding of the assigned readings and the related class discussions.

Exercises / Quizzes: There will be a number of in-class exercises which will carry points. There will also be short quizzes (unannounced) consisting of short answer questions.

Papers / Projects: You will be asked to write 3-4 papers (3-6 pages) based on library research and project work. Detailed instructions for each paper will be provided in separate handouts.

Class Participation: All the assigned readings should be done before each class. You are expected to come well-prepared and ready to participate. Your participation grade will reflect your contributions to the class discussions.

Final grades will be calculated on a straight percentage scale as follows:

A+	97-100%	C+	77-79%
A	93-96%	C	73-76%
A-	90-92%	C-	70-72%
B+	87-89%	D+	67-69%
B	83-86%	D	63-66%
B-	80-82%	D-	60-62%

Here are a few important points you should keep in mind as you work through the course requirements:

1. No make-up exams will be given except under dire circumstances which are substantiated with written documentation. Any make-up exam, if administered, will consist almost entirely of essay type questions.
2. Incomplete course grades will be given only for end-of-semester illness or accident; they will not be given for poor grades or lack of attendance.
3. Late submissions will carry a stiff penalty.
4. Instances of academic dishonesty will be dealt with as per university rules and regulations explained in the Schedule of Classes.
5. Every effort will be made not to deviate too much from this course syllabus. However, both the calendar and course requirements are subject to change. Each class moves at its own pace and therefore there is a need for a certain amount of flexibility within the course design.

## CALENDAR

<u>Date</u>	<u>Topic &amp; Readings</u>
Mon / Aug 28	Introduction to the course  <i>Archetypal Pattern of Network Development</i>
Wed / Aug 30	Development of Telegraph in the U.S. (no readings)

Mon / Sept 4                      Development of Telegraph in the U.S. (no readings)

***Conceptualizing a Large Technical System***

Wed / Sept 6                      Mueller—The Switchboard Problem: Scale, Signaling, and Organization in Manual Telephone Switching, 1977-1897

Mon / Sept 11                     Hyman—Introduction; Signal and System; Terminal Equipment; Switch, Evolution of Switching Technology, Transmission Media

***Latent Demand and Network Investments***

Wed / Sept 13                     Brock—The Telephone in the United States

Mon / Sept 18                     Fischer—The Revolution in Rural Telephony, 1900-1920

***Integrated Network, Natural Monopoly, & Regulation***

Wed / Sept 20                     Brock—Decline of Competition 1907-1935

Mon / Sept 25                     Brock—The Era of Regulated Monopoly, 1934-1956

Wed / Sept 27                     Brock—Economic Characteristics of the Telecommunication Industry (textbook Chapter 5)

Mon / Oct 2                        Brock—Competition in Terminal Equipment (textbook Chapter 6)

Wed / Oct 4                        Brock—Initial Long Distance Competition (textbook Chapter 7)

Mon / Oct 9                        Brock—Interconnection and Long Distance Competition (textbook Chapter 8)

***Collapse of the Old Paradigm***

Wed / Oct 11                       Brock—The Divestiture (textbook Chapter 9)

Mon / Oct 16                       Faulhaber—The Debate Resolved: The Divestiture Decision

Wed / Oct 18                       MIDTERM EXAM

Mon / Oct 23 Brock—Institutions of Telecommunications Policy (textbook Chapter 4)

Wed / Oct 25 Brock—Introduction (textbook Chapter 1)

***Emergence of New Network & Regulatory Structures***

Mon / Oct 30 Brock—Access Charges: A Confusing Ten Billion Dollar Game (textbook Chapter 10)

Wed / Nov 1 Brock—The Implementation of Access Charges (textbook Chapter 11)

Mon / Nov 6 Brock—The Dismantling of Structural Separation (textbook Chapter 12)

Wed / Nov 8 Brock—Competition in Local Service (textbook Chapter 13)

Brock—Price Caps and Regulatory Boundaries (textbook Chapter 14)

Mon / Nov 13 Internet Economics (handout)

Wed / Nov 15 Internet Economics (handout)

Mon / Nov 20 Sawhney—The Public Telephone Network: Stages in Infrastructure Development

**THANKSGIVING RECESS**

Mon / Nov 27 Wireless Networks (handout)

Wed / Nov 29 Wireless Networks (handout)

***Dynamics of Network Development***

Mon / Dec 4 Mueller—Universal Service in Telephone History: A Reconstruction

Wed / Dec 6 Brock—Conclusion (textbook Chapter 15)

**FINAL EXAM: DECEMBER 13, WEDNESDAY, 10:15 a.m. to 12:15 p.m., TV 226**