Programs of Education Relating to Satellite and Space Communication in Telecommunication

Syllabus: Sample Course in Satellite Communications

SATELLITE COMMUNICATIONS
TCOM 465 (05476) / 565 (05532)
Winter 2002

Class Hours 7-9 T&Th
Office Hours 1-3 MW, 3-5 T&Th
(or by appointment)

Don Flournoy, Instr.
Office: RTVC 235
593-4866

Course Objectives: By the end of the course, students should have specific knowledge of the role of satellites in global communications from historical, technical, regulatory, economic, cultural and programmatic perspectives.

Course content will address such questions as:

- who are the principal players, in the USA and abroad, who make up the satellite communications industry;
- what organizational structures have been established to facilitate communication by satellite;
- what are the specific space and earth technologies used in satellite communication and how do they work;
- what types of programs/services/applications are being offered via satellite and who are the providers and their target audiences;
- and, what are the principal economic, regulatory, cultural and other factors affecting the long-term viability of this industry?

Text and Readings:

Required: BROADBAND SATELLITE: a 56-page chapter in the telecommunications text being authored by the Instructor entitled THE BROADBAND MILLENNIUM: COMMUNICATIONS TECHNOLOGIES AND MARKETS.

Required: SPACE NEWS: a newspaper delivered in bulk weekly to the Instructor. Cost is $15 for 10 issues. Payment is due Thurs. Jan. 11.

Required: Elbert, Bruce R., INTRODUCTION TO SATELLITE COMMUNICATION, Boston: Artech House, 1999, pp. 557. This is an outstanding book but expensive. For those who feel they cannot afford to buy it, I have placed a copy on one-day reserve in the Alden Library Reserve Reading Room, 3rd Floor.
Student Evaluation:

Team Report (Executive Brief) - 20 points
Research Paper (Term Paper) - 30 points
Mid-term Examination - 20 points
Final Examination - 30 points

Undergraduate and graduate papers will be graded by the same standard; undergraduate students will have two points added to their total scores at the end of the quarter. Two class cuts are permitted: any additional absences will deduct two (2) points for each class session missed. Two points will be deducted for each late paper. No papers will be graded after the last class day.

Weekly Schedule:

| Jan. 4: | Course objectives, procedures explained; overview of satellite communications discussed; status report on satellite industry. ASSIGNMENT: BROADBAND SATELLITE: secure this overview document and read all of it as soon as you can; Elbert's SatCom: read chapter 2 on the evolution of satellite communications, pp. 41-76. |
| Jan. 9 & 11: | Role of satellites in national/global information infrastructure. Principal international players discussed: Intelsat, Inmarsat, Panamsat, Space Systems/Loral, Lockheed Martin, Eutelsat and others. Area Studies Research and Reporting teams are formed. Executive briefs due Jan. 23. ASSIGNMENT: Elbert's SatCom: read chapter 1 on the fundamentals of satellite systems, pp. 1-40; Space News: glance through the entire issue. Identify a single article you would like us to discuss in class. |
| Jan. 16 & 18: | Earth Segment and Space Segment technologies and applications examined. Space News articles discussed. Give instructor the topic of your Research Paper (due Feb. 29) and arrange to see him to discuss it. ASSIGNMENT: Elbert's SatCom: read chapter 10 on launch vehicles and services, pp. 405-442; Space News: look for articles that address issues related to readings/class discussions; work on Team Reports. |


Feb. 13 & 15: Discussion of satellite programs and services, including DARS, DBS and MSS. Discussion of articles in Space News. ASSIGNMENT: Review latest issue of Space News; continue work on your Term Paper (due Feb. 29).


Mar. 6 & 8: Sharing of Research Paper topics/findings. Review for final examination.

FINAL EXAM: Tues. Mar. 17, 1999 at 7:00 PM in RTVC 229

AREA STUDIES TEAM REPORT

The assignment is intended to give class members an opportunity to examine and report on the satellite communication practices of the five world regions: Africa, Asia-Pacific, Europe (including Eastern Europe), Latin America, Middle East and North America.

Written and oral reports are to be in the form of an Executive Briefing. This is a status report on satellite communications infrastructure, principal players, applications and issues presented in an "expanded outline" form. Although the assignment requires research, this is not a formal research paper. Not all countries, not all events, not all concerns within the region need be addressed - only selected technologies, players, programs and services, economic and regulatory issues are highlighted.
Teams will be chosen during the first week of the quarter. Written reports will be due on Jan. 23; giving of the five oral reports will be stretched over several class sessions. Written briefs should be from 6 to 10 pages each, with bibliography and graphs/illustrations as appropriate. On Jan. 23, a copy of this report should be e-mailed to each class member using the class list provided by the instructor.

TERM RESEARCH PAPER

Student topics should be chosen from among those issues/events/organizations/applications of greatest personal or professional interest. Before a final topic is chosen, however, the subject of research and methods of investigation should be discussed with the instructor no later than Jan. 11. The paper is due Feb. 29.

Papers are to be 10-12 pages in length with cover page, footnotes/endnotes and bibliography. Since this is a research paper, a variety of up-to-date sources are to be consulted and properly documented. (Warning: do not rely exclusively on Internet sources and be sure you clearly document when you do.) Papers must be typed in good form, free of spelling and grammatical errors, with thoughts logically developed. Finding, analyzing and presenting the most up-to-date information available on the topic is your goal. An illustrative picture or diagram should be appended.

Your paper is to be written with an uninitiated lay audience in mind (making the topic both understandable and interesting) and should address some or all of the following:

- The Concept: what is the technology/process/idea/organization/problem under consideration? What does the reader need to know to understand the topic?
- Historical Context: what is the background of the topic under consideration? What has led up to it? Who are the principal parties involved?
- Relevance: what is innovative/important/consequential about what you are investigating? How does it fit into satellite communications overall? What difference does it make?
- Constraints: what are the principal limitations/barriers/difficulties: technical, regulatory, economic, political or programmatic? What is happening in 2002?
- Future Directions: Where is this development going? What applications/uses are to be expected? What is to be done, by whom?

A one page ABSTRACT is to be e-mailed to each member of the class on Feb. 29 so the others can benefit from your research. The abstract should highlight your research findings and conclude with two or more questions that summarize the information presented. These questions should be suitable for use as part of a more comprehensive question on our final examination.