

CS597 Multimedia and Web Development

Fall 2003

Instructor: Dr. R.J. Greene

Syllabus

Text: NONE

Prerequisites: CS245 and CS250

Course Description:

I am a strong believer in learning-by-doing. At the moment, I plan to have each of you actually DO (i.e., write code, modify code) to learn about audio, video, HMI, graphics, and so on. I need your help in this. I will try to accommodate all the different personal goals you may have as well as your current skillset. Initial order of presentation will be multimedia as an idea, then audio signals, then data communications, then imagery, and on to the language aspects starting with HTML. Other topics appear below. My intent is to start with easy, less technical ideas and move on to the highly technical aspects of sound/image compression, data rates, machine design, search engines and so on.

The course is intended to provide an overview of the technical aspects of multimedia from a computer science perspective: algorithms, languages, hardware and software architectures, communications protocols, etc.

Course Administration:

Each class will present a key technical aspect of multimedia. Please take thorough notes. The text is more of a reference than an actual textbook. Most of the course content will be given in class and is really not available from a single source.

Grading

Problems/Projects/Homework	40%
Midterm(take home)	30%
Final (take home)	30%

Topics to be covered

DATA COMMUNICATIONS

Overview of Networking Technology
Multicasting
Special Multimedia Requirements on data communication
Protocols: TCP/IP RTP STP HTTP, ATM

AUDIO/IMAGE/VIDEO/SIGNAL/REPRESENTATION

DATA COMPRESSION

USER INTERFACE DESIGN

SEARCH ENGINE ARCHITECTURE

AGENT ARCHITECTURE

MULTIMEDIA DATABASES

SECURITY

Computer System
Network
Cryptography

SPECIALIZED HARDWARE

Processors (e.g., INTEL MMX)
Storage (e.g., RAID)
interfaces (e.g.,SCSI)
monitors (e.g.,HDTV)

MULTIMEDIA OPERATING SYSTEM ARCHITECTURE

VIDEO/AUDIO/NEWS FEED ON DEMAND

MULTIMEDIA SERVER ARCHITECTURE

MULTIMEDIA DATA FORMATS (WAV,GIF, ETC)

AUTHORING TOOLS

issues
design
challenges

LANGUAGES

HTML
Java
CGI

WWW/INTERNET ARCHITECTURE AND OPERATION

IP addressing
Resource identification and location
Future Directions in technology/standards

SOCIAL ISSUES

Legal
Political
Entertainment
Educational

APPLICATIONS

Government
Education
Business
Defense
Medical
Entertainment
Scientific
ETC