We will use the distance learning technology to enable attendance in multiple classrooms

- DLC 204: seats 48 students, room from which I will teach
- DLC 304: seats 32 students, 2-way audio & video
- MPEG2: On-campus broadcast to desktops (full screen, high quality), uses streamplayer 2 client installed in general access labs, 1-way audio & video
- Windows Media Stream: 1-way audio & video, need fast connection
- Windows Media Archive: 1-way audio & video, posted within 24 hours of lecture, can skip forwards and backwards
- Video Tape Archive: available at reference desk in Millar Library within 24 hours of class

This Time
- Syllabus
- Miscellaneous Notes
- Class overview & logistics
- Begin Fourier Series

My Background
- Ph.D. 1999
- Teaching in PSU ECE dept. 3.5 years
- Second time teaching this course
- Research area: Biomedical signal processing
  - See http://bsp.pdx.edu
### Textbook
- **Signals & Systems**
  - One of the gold standards
  - Verbose, but thorough
  - Designed to be read, rather than referenced
  - Problems are more advanced than *Fundamentals of Electric Circuits*
  - Will follow closely
  - Required
- **Computer Explorations in Signals and Systems**
  - Applies the concepts using MATLAB
  - Required for the ECE 203 labs

### Textbooks Continued
- **Signals and Systems Made Ridiculously Simple**
  - Very concise
  - Not comprehensive, but a good short explanation of the most critical concepts
  - Recommended
- **MATLAB Guide**
  - Introduction and reference for MATLAB
  - Useful book that would last through the program
  - Recommended

### Miscellaneous
- **ECE 222 final exams** may be picked up during my office hours
- **Course background**
  - Second time this course has been taught
  - Will be a little more rough than ECE 222
  - Most of the material is new and formerly covered in ECE 410-DSP, *Digital Signal Processing*
- **ECE 203 labs**
  - The ECE 203 labs start next week
  - Accessible online from http://ece.pdx.edu/~ece2xx/ECE203
- **Scientific calculators**
  - Less important than for ECE 221
  - This term will work more with variables than numbers
  - Not allowed during exams

### ECE 223 Topics
- Fourier Series Representation of Periodic Signals (Ch. 3)
- Continuous-Time Fourier Transform (Ch. 4)
- Discrete-Time Fourier Transform (Ch. 5)
- Sampling (Ch. 7)
- Introduction to Communications (Ch. 8)
- The $z$-Transform (Ch. 10)
- Introduction to Discrete-Time Filters (NA)
Homework & Lectures

- Lecture notes
  - Posted on the class web site
  - Watch for updates as late as 6 pm the day before lecture
  - Workspace is provided for examples that will be filled in during lecture
- Homework solutions will be posted shortly after assigned
- Previous students have used the solutions as a learning tool
- Lectures will also be posted online
- Both will be password protected
  - User name: ECE223 (no space)
  - Password: Fourier

Course Resources

- Textbooks
- Recitation sections
- Office hours (mine and TA’s)
- IEEE Tutors
- Lecture notes (second draft)
- Homework solutions
- Distance learning classroom
- Course web site: http://ece.pdx.edu/~ece2xx/ECE223

Course Web Site

http://ece.pdx.edu/~ece2xx/ECE223

- Syllabus
- Course outline
- Lecture notes
- Online lectures
- Homework assignments & solutions
- Errata (text and homework)
- Exam topics
- Exams from last year
- Grades
- Relevant links

6-digit Codes

- I use 6-digit codes to post your grades online and for anonymous identification on exams
- Email code to me this week
- Your codes from last term do not roll-over into this term
- Can be any character that you can send via a plain-text email
- Remember it for exams
- Label Homework as follows
  - First letter in last name & 6 digit code
  - Class
  - Term
- Example
  - A–123456
  - ECE 223
  - Spring 2003
General Comments on Class

- Challenging
- Very little circuit analysis
- Less number crunching
- More focus on signals, than systems
- Mixture of core concepts and introductions & overviews of ECE sub-disciplines
  - Core material: Fourier series and transforms, z-Transform
  - Introductory material: Sampling, communications, Sampling, DT filters
- Similar level of abstraction as ECE 222
- Good overview of signal processing fundamentals

Homework Assignment 1

- Email me 6-digit code
- Reading
  - Review: Chapters 1 & 2
  - Required: Chapter 3, Sections 3.0, 3.2 - 3.8, 3.12
  - Recommended: 3.1, 3.9 - 3.11
- Problems
  - Ch. 3: 1–4, 6, 16, 22, 23, 28, 29
- Assignment is also posted on the class web site
- Solutions will be posted when possible
- Most problems have answers listed in back of text
- Due on Wednesday, April 9 (1.5 weeks)

Logistics: Text & Lab Assignment Errata

- Each error worth 50% of a homework
- Find two errors = can skip an assignment
- Cannot receive more than full credit for homework
- Typos and grammar count
- Must be first to email me
- Will respond when possible (typically within a few days)
- Known errata are posted on the web site
- Probably not many errors in the text
- More errors in the HW solutions