

## **EEL 6586: AUTOMATIC SPEECH PROCESSING SPRING 2008**

**Instructor:** John G. Harris

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**Office hours:** TW 8:00-9:00am

**TA:** TBA

**Prerequisite:** EEL5701

**Class Meeting:** MWF 5th period (11:45-12:35pm) in LAR 239

**Class Homepage:** <http://www.cnel.ufl.edu/hybrid/courses/EEL6586>

**Required Textbook:** Discrete-Time Processing of Speech Signals by John Deller, John Hansen and John Proakis, Wiley-IEEE Press Reprint edition (September 21, 1999) ISBN: 0780353862.

### **Reference Books:**

- Spoken Language Processing: A Guide to Theory, Algorithm and System Development by Xuedong Huang, Alex Acero, Hsiao-Wuen Hon, Raj Reddy Prentice Hall PTR; ISBN: 0130226165
- Speech Communications : Human & Machine by Douglas O'Shaughnessy, IEEE Press, Hardcover 2nd edition, 1999; ISBN: 0780334493.
- Digital Processing of Speech Signals, Rabiner and Schafer, Prentice Hall, 1978.
- Fundamentals of Speech Recognition, Rabiner and Juang, Prentice Hall, 1994.

- Speech and Audio Signal Processing : Processing and Perception of Speech and Music by Nelson Morgan and Ben Gold, July 1999, John Wiley & Sons, ISBN: 0471351547
- Discrete-Time Speech Signal Processing: Principles and Practice by Thomas F. Quatieri Publisher: Prentice Hall; ISBN: 013242942X; 1st edition (October 29, 2001)
- Speech Processing and Synthesis Toolboxes by Donald G. Childers, John Wiley & Sons, September 1999; ISBN: 0471349593

**Course Topics:**

The course covers the basics of speech processing, synthesis, and recognition. Homework assignments include writing Matlab programs to process actual speech signals. Course topics include:

- \* Fundamentals of speech science
- \* Modeling speech production
- \* Short-term processing of speech
- \* Linear prediction analysis
- \* Cepstral analysis
- \* Speech coding and synthesis
- \* Speech enhancement
- \* Recognition using templates and DTW
- \* Recognition using hidden Markov models

**Tentative Grade Determination:**

1/3 Homework  
1/3 Exam 1  
1/3 Final Project

**Key Dates:**

Exam March 18, period E2-E3, room TBA.  
Final project due April 25, midnight.