

M.E. 7980 – Uncertainty Analysis in Engineering

Time: TBD

Instructor: Dr. Ken Currie

Phone Number: 372-3362

Office Hours: 10-12 TR

Office: 222 Brown Hall

Prerequisites: Consent of Instructor

Required Text: *Uncertainty Analysis in Engineering and Sciences: Fuzzy Logic, Statistics, and Neural Network Approach* edited by Ayub and Gupta, Kluwer Academic Publishers, 1998.

Reference Text: *Fuzzy Logic for Planning and Decision Making*, Lootsma, Kluwer Academic Publishers, 1997.

Grading Scale

10% Scale

Evaluation Methods

Research Paper ¹	400 points
Class Participation ²	100 points
Weekly Homework Assignments	200 points
In-class Presentations by Students ³	200 points
Final Exam	100 points

¹The research paper will consist of a thorough literature review and analysis of uncertainty for a relevant engineering design problem. Selection of research topics will be by consent of the instructor.

²In a directed study doctoral level course, participation is essential for everyone to benefit from others' insights. This grade will be assessed throughout the semester and at any point in the semester a student may review his/her participation scores and discuss ways to improve with the instructor.

³Each student will be responsible for making presentations to the class over four class periods on two separate topics to be selected by the instructor. Grading will consist of teaching methodology, content quality, and class participation.

Course Objectives

1. Develop an understanding of how to include uncertainty analysis in a variety of engineering design problems
2. Understand different techniques for dealing with uncertainty and the pros and cons of each.
3. Understand the state-of-the-art research in uncertainty analysis.
4. Learn methodologies for communicating difficult engineering concepts in a classroom setting.
5. Develop a set of tools and concepts that can be applied engineering environments.