**ME 4/560 - Intermediate Fluid Mechanics**

**Fall 2016**

**Lectures: T-TH 10:00-11:50 am, Rogers 230**

**(Students are responsible for changes announced in class)**

**Text:** *Intermediate Fluid Mechanics*, R.H. Nunn, Publisher: Hemisphere

*Supplement: Fluid Mechanics* by F.M. White (or other undergrad fluids text)

***Study Guides*** *will be given out for each major topic – use this to focus material and to determine what it is you need to study in order to do the problems*

**Office Hours: T-Th 2:30 – 3:30 in Rogers 310**

(other times available upon request, or stop by my office if I am free)

**Schedule:**

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| **Date** | **Topic** | **Reading: Nunn/White** |
| Week 1 (09/22- 09/29) | Introduction – math tools  Ideal flow (Euler’s eqn.) | Ch 1,2/Ch 4 (Assig. #1)\* |
| Week 2 (10/04 - 10/06) | Generalized Bern. Eqn.  Potential flow analysis | Ch 3/Ch 8 |
| Week 3 (10/11 - 10/13) | Potential flow analysis  Airfoil analysis | Ch 4/Ch 8 (Assign #2)\*  Handout |
| Week 4 (10/18 - 10/20) | Navier-Stokes (N-S) Eqns. | Ch 10 |
| Week 5 (10/25 - 10/27) | **Midterm 1 (Oct. 27)**  Alternative forms of N-S | **Ch 1-4 Nunn**  Ch 10/Ch 4 (Assign #3)\* |
| Week 6 (11/01 - 11/03) | Exact solns.  Similarity principle | Ch 11/Handouts |
| Week 7 (11/08 - 11/10) | Laminar boundary layer | Ch 12/Ch 7 |
| Week 8 (11/15 - 11/17) | **Midterm 2 (Nov. 17)** Momentum Integrals | **Ch 10,11 Nunn**  Ch 12v (Assign #4)\* |
| Week 9 (11/22) Thanksgiving week | Turbulence introduction | Ch 13.1, 13.2/Ch 7, Ch 13.4 |
| Week 10 (11/29 &12/01) | Turbulent boundary layers | Ch 13.5/Ch 7 |
| **12/05 (Monday) 6 pm** | **Midterm 3** | **Ch 12, 13 Nunn** |

**\*Assignment dates are approximate for when they are assigned; due dates are given on the assignments and will be approximately 2 weeks in duration.**