

Goals for ME 363

The major goal for ME 363 is to prepare students with the knowledge to solve engineering problems in Fluid Mechanics. In particular, there are specific conceptual topics that should be mastered, and specific skills which a student should be able to perform at the end of the course. After each knowledge goal a skill (if applicable) will be listed in italics, and the lecture number corresponding to when it will be covered in class follows.

After completion of ME 363, a student should have:

- A good physical understanding of the forces relevant to fluids, both while in motion and when static.
 - *Ability to draw a fluid control volume and include all relevant forces.*
 - lectures: 1-13,19,20*
- An understanding of integral control volume conservation equations.
 - *Ability to use control volume analysis to solve engineering problems.*
 - lectures: 8-16*
- An understanding of the difference between differential and integral control volume relations.
 - lectures: 20,21*
- An understanding of the use and limitations of Bernoulli's equation.
 - *Ability to use Bernoulli's equation to solve engineering problems, and to assess its validity.*
 - lectures: 17-19*
- An understanding of dimensional analysis, and the use of nondimensional parameters.
 - lectures: 5-7,34,35*
- An understanding of frictional drag for internal and external flows, and lift generation for flow over a body
 - *Ability to calculate pressure drop in piping networks.*
 - *Ability to calculate lift and drag for external flows.*
 - lectures: 22-35*
- A general understanding of compressibility effects on flows.
 - *Ability to calculate fluid properties through sections of varying area for compressible gases.*
 - lectures: 36-39*
- An understanding of the principles of flow measurements devices.
 - lectures: 19*