

# CE 531

## Physical-Chemical Processes for Water Treatment



**Fall, 2011  
TR 3:30 – 4:45 PM  
UNM Centennial Engineering Center  
Room 1030**

**Instructor: Kerry J. Howe**

Making water suitable for a specific purpose – such as drinking or industrial process use – requires a series of unit operations that depend on the quality of the source water and the objectives of the product water. This course provides an understanding of the theory and mechanisms governing physical and chemical processes used in water treatment. Basic design features of the processes are presented, but the emphasis is on the underlying principles – why a process works, what the significant variables are, how a process can be described mathematically, and what the limitations of the models are. In addition, the course develops skills expected of all environmental engineering graduate students: the ability to solve problems using mass balance principles, the ability to critically evaluate technical literature, critical thinking skills, and technical writing skills. This course is suitable for graduate students in environmental engineering or chemical engineering.

The topics covered are:

- Water quality, regulations, and an introduction to water treatment
- Conservation of matter and mass balance concepts
- Analysis of ideal and non-ideal reactors
- Coagulation
- Flocculation
- Sedimentation
- Granular filtration
- Membrane filtration
- Disinfection

For more information, contact Dr. Kerry J. Howe  
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