



NORTHWESTERN  
UNIVERSITY

○ ***Mechanics of Advanced Materials***

**Mechanical Engineering**

This course covers materials and mechanics issues related to the behavior of advanced materials (i.e. polymers, polymer nanocomposites and shape memory alloys), including constitutive models for macroscale representation of the material response to stimuli such as mechanical load, temperature changes, electric field based on the microscale mechanisms (molecular mobility and phase transitions) responsible for their unique properties.

○ ***Nanotechnology***

**Mechanical Engineering**

Topics include the manipulation of matter at the nanometer length scale to produce useful devices and materials; nanoscale sensors; mechanical & electrical systems; molecular electronics for memory and computing; novel materials; scientific and engineering properties of nanoscale systems.

○ ***Selected Topics in Nanotechnology***

**Mechanical Engineering**

Studies on several topics related to nanotechnology; similar in format to the Nanotechnology course but at level appropriate for graduate students.

○ ***Nanotechnology: Manufacturing and Business Opportunities***

**Mechanical Engineering**

This course assesses opportunities in manufacturing and business related to the emerging field of nanotechnology. Invited speakers from the business community present their perspective on business opportunities and challenges presented by nanotechnology and manufacturing issues faced.

○ ***Computational Chemistry***

**Chemistry**

This course covers the theory and practical application of quantum mechanics (QM) and molecular dynamic (MD) techniques for the computational study of materials.