

# Chemistry 801: *Nanostructured Materials and Interfaces*

Instructors: Arthur B. Ellis, Amy Payne, Jonathan Breitzer, Cindy Widstrand  
2 or 3 credits

Lecture meets Tuesdays and Thursdays at 2:25, room B387 Chemistry.

Occasionally there will be a lab in place of lecture in room 2365 Chemistry at times to be determined.

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## *Course information*

This special topics course will explore the preparation, characterization, and applications of nanoscale materials and interfaces from a chemical perspective.

## *Recommended readings*

N. B. You must be connected to a UW server (or have a subscription) to access the links to some of the journal articles.

1. I. Amato. *Nanotechnology: Shaping the World Atom by Atom*. NSTC report, 1999.
2. *Science* 2000, 290 (5496). November 24 issue on nanotechnology.
3. *Chem. Rev.* 1999, 7. July issue on new directions in nanotechnology.
4. K. E. Drexler. *Nanosystems: Molecular Machinery, Manufacturing, and Computation*. Wiley, 1992.
5. G. Timp. *Nanotechnology*. Springer, 1999.
6. P. C. Hiemenz and R. Rajagopalan. *Principles of Colloid and Surface Chemistry, 3rd Ed.* Dekker, 1997.
7. W. D. Callister, Jr. *Materials Science and Engineering: An Introduction*. Wiley, 2000.
8. A. B. Ellis. *Teaching General Chemistry: A Materials Science Companion*. American Chemical Society, 1993.
9. Alivisatos, A. P. *J. Phys. Chem. A* 1996, 100, 13226. (Review article).
10. A pessimist's view on the future of nanotechnology (Article by Bill Joy in the April 2000 issue of Wired magazine).

## *Grading*

Grading will be based on occasional problem sets and a short paper and oral presentation. The paper (3-5 pages) can either be a literature review or an extension of a laboratory experiment conducted in the course. The topic will be selected in consultation with the instructors by Spring Break and due April 26. More detailed information will be forthcoming.

For a third credit, a second paper (approx. 10 pages) on a second topic is required, with the topic selected in consultation with the instructors and due May 3.