



Department of Chemistry, McGill University  
and Quebec Centre for Self-Assembled Chemical Structures  
present a joint course

## **Nanosciences and Nanomaterials (CHEM534) Seminars in Advanced Materials (CHEM 634)**

**Description:** A series of lectures on topics of current interest in advanced materials. The focus of the course is on exposing the students rational chemical prospective to synthesis, characterization and understanding of advanced materials, particularly at the nano-scale. The topics discussed will include:

Self-assembly phenomenon as an advanced materials concept  
Self-assembled bionanomaterials (artificial DNA structures, etc.)  
Quantum dots and their special spectroscopic properties  
Nanostructured polymeric materials  
Surface characterization using scanning probe techniques (AFM, STM, etc.)  
Soft lithography  
Surface-sensitive spectroscopic techniques  
Thin-film inorganic materials for information recording  
Molecular electronics  
New materials concepts in photovoltaics

The course will be given by multiple instructors who are the leading researchers in the respective fields, both at McGill and outside universities. The lectures will start a basic introduction to the fundamental of a specific method or a sub-field and then will include numerous examples of specific research problems.

**Evaluation:** A series of short assignments and one final paper (for undergraduate students) or a research proposal (for graduate students)

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**Term:** Winter 2010 (3 credits)

**Time and place:** 9:00 – 11:30 Friday, Pulp and Paper room 113 (starts on January 8, 2010)