COURSE OFFERING:  
**GEOL 7790: Advanced Instrumental Techniques in Geology**

Each year the Faculty of Environment, Earth & Resources offers a materials courses open to all students in the Natural and Applied Sciences. This year the course is open to only 13 graduate students – if you are interested in this course please register quickly – though this course is offered annually it tends to quickly fill up.

**Course Description:** Lecture and laboratory course covering the application of microbeam, mass spectrometer methods, diffraction and will focus on instrumental techniques and their use in characterizing materials and includes coverage of ICP, PIXE, powder and single crystal diffraction and electron microprobe analysis.

The course will include a laboratory in which students will be able to select 3 of 9 options focusing on the following techniques: XRD, EPMA, LA---ICPMS, XPS, WAX---SAX, ICP---OES, SEM, AFM, and Auger based on interests. Technical personnel from the three faculties (Chemistry, Geology, Electrical & Computer Engineering will run these sessions providing students considerable oversight and training.

- **Lecture in a Laboratory**
  - Dates: Winter Term (Jan 06, 2015 - Apr 10, 2015)
  - Days: Tues. & Thurs.
  - Time: 10:00 am - 11:15 am
  - Bldg. & Room: WALLACE 243

- **LABS:** Involve the same techniques offered in the undergraduate course including: XRD, EPMA, LA---ICPMS, XPS, WAX---SAX, ICP---OES, SEM, AFM, and Auger.

- **REGISTRATION INFO:**
  - Course Title: Advanced Instrumental Techniques in Geology
  - Course Number: GEOL 7790 - A01
  - CRN: 22780
  - Please see me for help in registering for this course (Amy Dario)

- **INSTRUCTORS:**
  - Michael S. Freund, Chemistry
  - Norman M. Halden, Geological Sciences
  - Douglas J. Thomson, ECE

- **WEBSITE:** [http://materials.umanitoba.ca](http://materials.umanitoba.ca)