

**Department of Materials Science & Engineering, University of Toronto**  
**Job Posting - Course Instructor Position**  
**Winter Term 2014-2015 (January-April)**

The Department of Materials Science and Engineering seeks a Course Instructor for the following course:

**Posting Date:** Wednesday October 29, 2014

**Closing Date:** Tuesday November 25, 2014

Number of positions available: 1

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**Course Title:** MSE550H1 F – Advanced Physical Properties of Structural Nanomaterials

**Dates of Appointment:** January 5, 2015 to April 30, 2015

**Course Description:** This course deals with the physical properties of bulk nanostructured materials. Included are mechanical properties (elastic behavior, tensile and compressive strength, creep, wear and fatigue properties) electrical properties (electrical transport phenomena, electrical resistivity) magnetic properties (paramagnetic, diamagnetic, soft and hard ferromagnetic, superparamagnetic and antiferromagnetic properties), thermodynamic properties (interfacial enthalpy, thermal stability, phase transformations, heat capacity). The considerable differences observed for nanocrystalline solids compared to conventional polycrystalline and amorphous solids will be discussed in terms of the microstructural difference for those materials.

**Description of the duties:** The Department of Materials Science & Engineering requires an instructor to teach and coordinate MSE 550H1 F (Advanced Physical Properties of Structural Nanomaterials) during the Winter 2014-2015 semester. The successful applicant will be responsible for effectively delivering the course with all of the attendant organizational issues of lecture preparation and delivery, supervision of teaching assistants, setting, supervision and marking of exams, final course marks, course evaluations, and so forth.

**Qualifications:** The applicant should have an in-depth knowledge of physical scaling laws and how the transition from conventional, bulk size, to the nanoscale can influence the mechanical, electrical, and the magnetic properties of nanocrystalline materials. In addition, knowledge of both analytical/continuum concepts and discrete physical phenomena and their role in determining material properties of nanostructured materials would be an asset, as well as comprehensive experience and familiarity with computational materials science techniques.

We are seeking previous experience in teaching, teaching excellence, and mastery of subject area. Prior experience teaching a similar university-level course is preferred.

**Estimated Course Enrolment:** 40 students

**Estimate of TA Support:** 1 lab TA (50 hours); 2 tutorial TA's (90 hrs each)

**Rate of Pay:** \$7,114.65 (including vacation pay)

Please note that should rates stipulated in the collective agreement vary from rates stated in this posting, the rates stated in the collective agreement shall prevail.

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Applicants should submit a cover letter and C.V. (including previous teaching evaluations, if applicable) electronically to:

Fanny Strumas-Manousos, Manager of Administration  
Department of Materials Science & Engineering, University of Toronto  
strumas@ecf.utoronto.ca

No late applications can be considered.

**NOTES:**

1. Department Standards and Policies are available in the Department office and in the CUPE, Local 3902 office.
2. The position(s) posted above is (are) tentative, pending final course determinations and enrolments.

This job is posted in accordance with the CUPE 3902 Unit 1 Collective Agreement.

Although a graduate student's preference as to the campus location of his/her TA appointment will be taken into account, both the initial TA appointment (or CI appointment) and the subsequent appointment obligation related to that appointment may be met through position(s) on any one of the three University of Toronto campuses (UTM, UTSC or St. George) in courses in the same discipline as the initial appointment. TAs will only be assigned to courses in fields in which they are or should be qualified to assist.