

# CHEM750: Carbon Nanotube Electronics

**Instructor:** Shirley Tang  
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**Lectures:**  
Thursday 7-9:30pm, C2-278

## Course Summary:

This course covers various topics in theoretical and engineering aspects of carbon nanotube (CNT) electronics, including atomic and electronic structures of CNTs, CNT synthesis and integration, device physics and circuit concepts of 1-D electronics, implementation of CNT devices. Specific state-of-the-art CNT devices and novel applications, such as ballistic field-effect transistor, chemical and biological sensors, and flexible thin film electronics, will be discussed.

## Grading:

Presentation – 40%, Final Exam – 60%

Each student will investigate a topic in CNT electronics and give a 45 min oral presentation.

## Reference Book:

*Carbon Nanotube Electronics*, Ali Javey and Jing Kong (Eds.), Springer, 2009.

## Course Website: Waterloo Learn

- All handouts, lecture notes, presentation slides will be available on the course website. (Note: No hard copy will be distributed in class).
- Please check announcements and new contents on the course website frequently.

## Course Syllabus:

Date	
Jan 12, 19, 26	Course Overview; Atomic and electronic structures of CNT; Synthesis and processing of CNT.
Feb 2, 9, 23	Device integration; Device physics; Device characteristics; Circuit simulation.  <b>Feb 20 – 24, reading week, no class.</b>
Mar 1, 8, 15	Frontier research in CNT electronics and applications. Select topics for final presentation and report.
Mar 22, 29	Student Presentations.

<b>Apr 12</b>	Final Exam
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