

# SAAST at Penn

## Summer Academy in Applied Science and Technology

### Nanotechnology 2012

Welcome to University of Pennsylvania's SAAST Nanotech Program!

**Nanotechnology**, shortened to "Nanotech", is the study of the control of matter on an [atomic](#) and [molecular](#) scale. Generally, nanotechnology deals with structures of the size 100 [nanometers](#) or smaller, and involves developing materials or devices within that size. There has been much debate on the future of [implications of nanotechnology](#). Nanotechnology has the potential to create many new materials and devices with wide-ranging [applications](#), such as in [medicine](#), [electronics](#), and energy production. On the other hand, nanotechnology raises many of the same issues as with any introduction of new technology, including concerns about the [toxicity](#) and environmental impact of nanomaterials.

#### **Class time and dates**

July 9<sup>th</sup> ~ July 27<sup>th</sup>, Monday through Friday, 9am – 4pm.

#### **Location**

Lectures – Berger Auditorium (Basement of Skirkanich Hall)  
Labs – Skirkanich 225

#### **Content**

This class will focus on the atomic and molecular structure and other concepts necessary to understanding why very small systems exhibit unique behavior. We will also explore various applications. Through lecture, class discussion, and labs, we will cover topics in nanomaterials, nanofabrication techniques, imaging nanostructures, real-life applications of nanotechnology, and nanoscience ethics.

#### **Instructor**

Casey Thomas, [caseyth@seas.upenn.edu](mailto:caseyth@seas.upenn.edu)

#### **Teaching Assistants**

Sarah Kornmeier  
Akim Ziai

#### **Grading**

Homework - 20%  
Labs - 10%  
Quizzes - 25%  
Presentations - 10%  
Final Project - 35%