



nanoHUB-U Special Edition

## **nanoHUB-U offers NEW course NANOPHOTONIC MODELING**

**[Register TODAY! Course begins September 18, 2014](#)**

**A FREE instructor-paced course brought to you by nanoHUB-U**

**Taught by Purdue Assistant Professor Peter Bermel**



This five-week short course aims to introduce students to the next generation of optical and opto-electronic systems using a unique, "bottom up" approach.

### **Course Objective**

Classical ray optics and the associated components, such as convex lenses and metallic mirrors have played a crucial role in modern technology; however, the limitations of these components in terms of size, flexibility, and cost have become increasingly clear over the last two decades. Fortunately, systems at the wavelength scale (nanophotonics) or smaller (plasmonics, metamaterials) stand ready to provide new capabilities for the next generation of optical and opto-electronic components, including new types of optical waveguides, lasers, detectors, and solar cells. In this class, we will study advanced methods for simulating such nanophotonic and plasmonic optical systems, including photonic bandstructure solvers, transfer matrix analysis, rigorous coupled wave analysis, finite-difference time domain, and finite-element methods.

[Scientific Overview](#)

[Course Information and Registration](#)

### **COURSE SCHEDULE:**

September 18-October 23, 2014

#### **WEEK ONE:**

Photonic Bandstructures and Bandgaps

#### **WEEK TWO:**

Solving Multilayered Photonic Systems

#### **WEEK THREE:**

Direct Simulation of Maxwell's Equations in Time

#### **WEEK FOUR:**

Advanced Time-Domain Simulations

#### **WEEK FIVE:**

Simulating Multiscale Systems with Finite-Element Methods

### **SHARE**



### **LINK TO US**

Link your homepages to nanoHUB.org. [Click here](#)

### **ABOUT US**

[Contact Us](#) [Unsubscribe](#)

The Network for Computational Nanotechnology and nanoHUB.org are supported by the National Science Foundation.

