



CENTER for NANOSCALE SYSTEMS INSTITUTE for PHYSICS TEACHERS

SUMMER COURSES FOR PHYSICS TEACHERS 2009 ITHACA, NY

The CNS Institute for Physics Teachers (CIPT) is dedicated to serving the needs of high school physics teachers. This program, which is the educational outreach initiative of the Cornell Center for Nanoscale Systems (CNS), is funded by the National Science Foundation and the New York State Office of Science, Technology & Academic Research.

The Institute's goals are:

- To update high school teachers on recent advances in physics and related applications.
- To provide participants access to high quality, innovative laboratory exercises relevant to the NYS Physics Core Curriculum and national physics standards.
- To develop a continuing relationship between Cornell University and high school physics teachers.
- To establish a community of high school physics teachers and enable teacher networking.



The CIPT offers high school physics teachers a unique and intensive summer opportunity for professional development. Graduate credit in physics is awarded for CIPT courses by Cornell University. The CIPT offers one-week and two-week graduate courses, covering topics in contemporary physics and related applications, for 20 selected teachers each. Additional teachers with outside funding will be considered for acceptance into the program.



The CIPT graduate courses contain lectures, lab tours, and innovative, inquiry-based laboratory experiments. Lectures and lab tours are designed to update high school physics teachers on recent advances in diverse topic areas. The laboratory component of the course provides teachers a deeper understanding of the subject matter and free access to the CIPT's equipment lending library. This enables teachers to easily bring their new knowledge and these high-quality, student-centered laboratory activities into their classrooms. Labs are borrowed for 10 days at no expense to the teacher. A CD containing all course materials is provided for both courses and a \$1000.00 budget to purchase CIPT hardware is provided for teachers completing PHYS 6501. CIPT labs can be viewed at: <http://www.cns.cornell.edu/cipt/labs/lab-index.html>.



SELECTION CRITERIA

Applicants must currently teach at least one period of high school physics per day or give workshops for physics teachers on an on-going basis. Acceptance into the program is based upon a competitive selection process.

COURSE DESCRIPTIONS

PHYS 6501 Contemporary Physics for Teachers

July 5 – 17, 2009

2 graduate credits

Lectures are given by Dr. Julie Nucci and many Cornell faculty on topics including: electronics, photonics, nanotechnology, and particle physics. Lab tours provide a glimpse into state-of-the-art academic research. The lab activities, which are co-developed by high school physics teachers and Cornell scientists, are presented by teachers. Approximately 20 lab activities are offered including: building a water analogy to electric circuits, sending and receiving optical communication signals, observing subatomic particles with a cloud chamber, mapping a hidden “molecule,” and examining the quantum nature of light with LEDs.

PHYS 6502 Topics in Physics for Teachers

July 26 – 31, 2009

1 graduate credit

This lecture and laboratory course is open only to alumni of PHYS 6501. Lectures are given by Dr. Julie Nucci and other Cornell faculty. This course, which changes every year, is designed around newly developed CIPT labs. The 2009 course is expected to feature activities on: the physics of baseball, the nature of resistance, static electricity, transformers, a physics view of biological membrane function and nerve signal transmission, and a water analogy to a capacitor.

TUITION, STIPEND, AND HOUSING

Tuition and fees are paid by the CIPT. Participants are housed in one of Cornell’s residence halls and receive a stipend of \$300 per week, parking, all weekday breakfasts, and some lunches and dinners. Partial reimbursement of travel costs may be available.

APPLICATION PROCEDURES

Please complete the entire application form in this brochure or download the application from the web (www.cns.cornell.edu/cipt). In addition to your completed application, the following materials must be submitted:

- A statement of purpose explaining why you want to attend the program and how your experience will benefit your students.
- A résumé that includes your educational background, employment history, awards, and a list of your attendance or participation in conferences, workshops, and courses.
- Two letters of recommendation from professional colleagues or school administrators. One letter of recommendation from a former student.



All materials must be mailed to:

Linda Clougherty
Education Program Coordinator
Center for Nanoscale Systems
Cornell University
632 Clark Hall
Ithaca, NY 14853

Application deadline: March 1, 2009

Notification deadline: April 1, 2009

Your application will only be considered if we receive all of the above materials by March 1, 2009.

FURTHER INFORMATION

For further information about CIPT, contact:

Linda Clougherty
Education Program Coordinator
Telephone: 607.255.9434
E-mail: cipt_contact@cornell.edu
Web: www.cns.cornell.edu/cipt

2009 APPLICATION

COURSE REQUESTED:

- _____ Contemporary Physics for Teachers (July 5–17)
- _____ Topics in Physics for Teachers (July 25–31) for PHYS6501 alumni only

APPLICANT INFORMATION:

Name: _____ E-mail: _____

Home telephone: _____ Work telephone: _____

Home address: _____ City: _____ State: _____ Zip: _____

Number of years you have taught high school physics: _____ Year tenure received: _____

Courses taught:

Years	Name of course	Number of sections	Level
2008 - 2009			
2007 - 2008			

Anticipated changes for next year: _____

Applicant’s statement: enclosed are application, résumé (including conferences), statement of purpose, recommendations

Applicant’s signature: _____

SCHOOL/INSTITUTION INFORMATION:

High school/institution: _____

Address: _____ City: _____ State: _____ Zip: _____

Locale: Urban Suburban Rural Total enrollment _____ Grades _____

Student demographics: African American _____% Pacific Islander _____% Asian _____%

Native American _____% Latino/Hispanic _____% Caucasian _____%

Percentage of students eligible for free or reduced lunch _____%

Principal’s Statement: I, _____, intend to have _____ continue teaching at least one period of physics per day for the next two years and will grant him/her up to two release days for professional activities if accepted to CIPT.

Principal’s signature _____

Please mail completed application and supporting documents to:

Linda Clougherty, CNS, Cornell University, 632 Clark Hall, Ithaca, NY 14853 by **March 1, 2009**.