

**PHYSICS 429.04: Modeling Method of Instruction – 2<sup>nd</sup> Semester Topics**  
**August 4 – August 15, 2008**  
**Department of Physics**  
**Illinois State University**

**Catalog Description:**

Physics 429.04 *Modeling Method of Instruction – 2<sup>nd</sup> Semester Materials*, 6 semester hours credit, fall semester

This workshop is designed to expand experienced modeling teachers experience into second semester physics topics needed to improve their physics instruction.

*Prerequisites:* In-service physics teacher who has completed a mechanics modeling workshop.

**NOTE:** Physics 429.04 course credit is NOT accepted by any graduate program at Illinois State University for the purpose of earning graduate degrees.

**Instructor:**

Dr. Carl J. Wenning, Teacher Education Specialist  
Physics Teacher Education Program  
Illinois State University Physics Department  
E-mail address: [wenning@phy.ilstu.edu](mailto:wenning@phy.ilstu.edu)

**Workshop Leaders:**

Jim Stankevitz and Tom Todd  
Wheaton Warrenville South High School  
E-mail addresses: [jstankev@cusd200.org](mailto:jstankev@cusd200.org) and [ttodd@cusd200.org](mailto:ttodd@cusd200.org)

**Meeting Days/Times/Location**

The class will meet on Monday through Friday, August 4 – August 15, 2008, from 7:00 A.M. to 1:00 P.M. In addition, there will be three, 5-hour, Saturday follow-up meetings in the fall with the times and dates for the meetings to be determined by the workshop leaders and participants. The total contact time will be 75 hours. Location: Room C203 at Wheaton Warrenville South High School, 1993 Tiger Trail, Wheaton, IL 60187.

**Overview:**

Secondary-level physics and physical science teachers, experienced in the practice of employing the Modeling Method of Instruction in their physics classes, will participate in 60 hours of workshop training in using the Modeling Method of Instruction for second semester physics topics. Participants will choose a focus of study from second semester modeling physics resources (CASTLE, electricity and magnetism, mechanical waves, and models of light). Electronically stored versions of the materials will be provided to all participants.

**Professional Practice Goals:**

The goal of this Modeling Method workshop is to extend the practices of the Modeling Method of Instruction to second semester materials. As with the first semester modeling workshop, real change in instructional practice will come about only when master teachers demonstrate new ways of teaching, allow less experienced teachers to practice the new method, and then help them to improve their efforts. This workshop will do just that. The principles learned here can be readily transferred to any sort of classroom instruction.

**Required Student Tasks:**

Students enrolled in PHYSICS 429.04 *Modeling Method of Instruction – Second Semester Topics* will be required to complete the following tasks:

**1) Essays (40% of course grade, 200 normalized points, 50 each)**

Students will write four (4) 2-to-3-page (1-inch borders, double spaced, 12-point Times font) essays that reflect their understanding of four of the following six topics:

- Differences and similarities in student misconceptions in the chosen area of specialization compared with those of mechanics
- The role of demonstrations in a modeling classroom
- Design and use of assessment in the modeling classroom
- The use of computers and technology in the modeling classroom
- Epistemological beliefs and effects on instruction
- Depth vs. Breadth (Is less really more?)

Each essay will be scored using a rubric. Details will be provided on the first day of class.

**2) Reflection on Teaching Practice (20% of course grade, 100 normalized points)**

Students will review videotapes of at least three full periods of school instruction and will complete a detailed reflection using an RTOP-based “teaching self-assessment inventory.” Self-assessment guidelines will be provided during the workshop.

**3) Daily Journaling (20% of course grade, 100 normalized points)**

Registered PHYSICS 429.04 students will be responsible for keeping a notebook for recording experiences, insights, reminders, and reflections on the subject matter of the workshop. These journals will be periodically examined during the workshop and judged on a 3-point basis: “3-strong, 2-weak, 1-unacceptable, 0-missing.” Written commentary will be provided by workshop leaders for improving these reflections if found weak or unacceptable.

**4) Participation (20% of course grade, 100 normalized points)**

Registered PHYSICS 429.04 students will be judged on the basis of daily attendance, active participation being assumed.

**Course Grade:**

Grades will be determined on the basis of the following scale:

- (90-100%) of all 500 normalized points = A
- (80-90%) of all 500 normalized points = B
- (70-80%) of all 500 normalized points = C
- (65-70%) of all 500 normalized points = D
- (00-65%) of all 500 normalized points = F

**Due Dates:**

Finalized essays must be received by the workshop leader (Jim Stankevitz) no later than Friday, November 21, 2008. Send via email to [jstankev@cusd200.org](mailto:jstankev@cusd200.org). You may send electronic draft copies for review if you like. Suggestions for improvements will be provided.

**Course Policies**

- Journals must be turned in at the end of class on the days requested.
- Participation will be assessed daily using attendance records.