

**NEW YORK UNIVERSITY**  
**The Steinhardt School of Education**  
**Department of Teaching and Learning**

**E14.2031 - MEASURING OUTCOMES OF SCIENCE TEACHING**

**Spring 2003**

**TIME/PLACE:** Wednesday, 4:55 p.m. - 6:35 p.m.; 25 w. 4<sup>th</sup>, C-15  
**INSTRUCTOR:** Nina A. Leonhardt  
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**OFFICE:** 239 Greene St., East Bldg., 6th Floor

**TEXT/READINGS:** Marzano et al, *Assessing Student Outcomes: Performance Assessment Using the Dimensions of Learning Model*, ASCD, 1993.  
*National Science Education Standards*, National Academy Press, 1995.

**COURSE DESCRIPTION:** A basic issue in educational reform is the examination of outcomes, outcomes that should be reflective of goals. At present, educators are faced with the national America 2000/Goals 2000 projects, the New York State Compact for Learning and Frameworks, changing New York City standards, etc. All of these projects seek to establish new levels of student achievement. How do we know if students actually learn material? Is this learning internalized? Can the student apply this learning? Traditionally, the question of evaluating students has always been difficult. The current reform movements and emphasis on demonstrated learning through application dictate that new strategies for assessing student learning, i.e., measuring outcomes be implemented. This course examines traditional, current and emerging assessment strategies, along with the impact of such strategies on the current and prospective teacher.

**COURSE OBJECTIVES:** After completing this course, students will be able to:

- 1) identify the characteristics and process of assessment;
- 2) appreciate a variety of assessment techniques;
- 3) understand concepts of measurement and evaluation;
- 4) be able to analyze existing assessment instruments and studies; and
- 5) be able to construct various assessment instruments

**COURSE REQUIREMENTS:**

The course grade will be computed as follows: homework assignments (20%), group construction and presentation of an assessment instrument (20%), individual research paper and presentation (30%), final exam (20%) and class discussion (10%).

Individual Paper/Presentation

Each student will submit a review of a journal article describing science teaching/learning outcomes assessment research. A topic proposal is due on February 5, with presentations beginning on February 19. The paper is to be submitted on the date the presentation. Presentations should be 8-10 minutes in length, including a question and answer period.

Assessment Instrument Presentations

Each team of 3-5 students will construct and analyze an assessment instrument to measure specific science learning. Each group will give a twenty-minute presentation, including a question and answer period, beginning on April 16. A draft of your assessment protocol, to be submitted via e-mail, is due on March 30. Instruments, along with analyses, are due at the time of the presentation.

**E14.2031 - Spring 2003**  
**Course Schedule**

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- 1/22 Introduction; reform in teaching, learning, evaluating, assessing; preparing prospective teachers  
Assignment: Internet research article; begin reading Marzano
- 1/29 National, state and local standards; desired outcomes  
Internet research article (due 2/3); read Marzano through Chap. 2
- 2/5 Measurement and evaluation  
Individual paper topic proposal due
- 2/12 Assessment: purpose, strategies, teaching and learning; formative and summative assessment  
Assignment: Sample assessment instrument; complete Part I of Marzano
- 2/19 Assessment instruments: traditional, current practice, emerging  
Individual presentations; Read Chap. 5 of Marzano
- 2/26 Performance-based assessment; authentic assessment  
Individual presentations
- 3/5 Portfolios; student reflection; peer assessment  
Individual presentations
- 3/12 Assessment using new and emerging technologies; Assessment instrument design
- 3/19 No class; complete Marzano
- 3/26 Team meetings; draft of assessment protocol due via e-mail by 3/30
- 4/2 Assessment instrument design and rubric design
- 4/9 Analysis of assessment instruments; teacher self-reflection
- 4/16 Matching desired outcomes with desired assessment  
Assessment instrument presentations
- 4/23 Future directions and implications  
Assessment instrument presentations
- 4/30 Assessment instrument presentations
- 5/7 Final exam