New York University
Steinhardt School of Culture, Education and Human Development
Department of Teaching and Learning
Methods II: Teaching of Science in Middle School and High School

Course Number: SCIED-UE 1040

Monday 4:55 - 6:35 PM
Silver 412

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The relationship between learning outcomes and assessment is considered in relation to how it influences instructional decisions especially with respect to development of curriculum. The roles of instructional strategies, motivation, classroom management, curriculum and technology are addressed as a means of sustaining learner interest and cooperation.

Text: Lemov, Doug, 2010, Teach Like a Champion, 49 Techniques that Put Students on the Path to College, (Enhanced Edition is the best), Josey-Bass, San Francisco

Look for the ebook version (in iTunes they have the version with video embedded)

During this course, you will:
- become familiar with current resource materials like Common Core Standards, the Next Generation Science Standards and the New York State Science Standards.
- prepare to carry on inquiry-oriented activities by engaging in investigations involving exploration and discovery,
- develop a deep understanding of the nature of science and its relationship with your teaching of science
- gain experience in preparing, teaching, and analytically reflecting on middle and secondary school science lessons while working with students in local schools, and
- develop teaching skills by preparing and implementing an in-depth inquiry project.

The course will be organized around the following themes:
- The nature of science
- Use of reform-based pedagogies to connect students to science (i.e., inquiry, cooperative learning, conceptual change, argumentation)
- Helping students learn from each other
- Supporting and assessing student learning

Assignments (all submitted to the Forums section of NYU Courses):

1. Compare the NYState scope and sequence with the Next Generation Science Standards (second draft)

2. Develop a unit of study based upon the themes in the NY State Regents Core.
   - What is the Big Scientific Question that is driving this unit of study?
   - What is the learning progression that leads up to this lesson?
   - Topics to be covered (use the scope and sequence developed above)
   - Resources needed for this unit:
     - Student level text
     - Student level readings
     - Useful web sites
     - Useful simulations
     - Useful teacher resources

3. Develop lab lessons based upon the NY State Regents Core (each person in the group develop one).
   Include:
   - A Pre-test to assess the level of your students
   - The Big Idea(s) that the students will investigate
   - A possible field trip that could connect to this unit
   - What adjustments have been made for ELL and Learning Ability

4. Demonstrate the Lab Lesson selected from the sequence developed above (this lesson will be video taped) Each person develops a lesson but the group helps present it. The Smartboard should be used as part of the lesson (other students need to touch it for some useful purpose).
5. Analyze your lesson based on the video taken of the session (what worked and what surprised you? What changes do you want to make?
6. Develop a "roundtable" style of assessment that would go along with your unit plan.
7. All of these materials need to be put together into a final project.

8. Three Reflections on the readings (Lemov) in the course (about 500 words - this is a reflection rather than a summary of the readings. What did you find that was most useful as you read these articles).

Lesson Plan structure

Your Name:

Date:

Overall Subject:

Grade Level:

Engagement: The Object, event or question to engage students based upon what students know and can do.

Exploration: This is the hands-on investigation that the students will do (the labs). It should involve some data collection and analysis. (the video can be used to enhance this section)

Explanation: Students explain their understanding of concepts and processes based upon the investigation above.

Elaboration: Activities allow students to apply concepts in context. What are the next questions that should be investigated?

Evaluation: Students assess their knowledge, skills and abilities. What are some ways that you can do this?

How can these activities be differentiated to accommodate English Language Learners and students with learning deficiencies?

Indicate the Content Standards that are addressed by each lesson (use the New York State Standards).

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4. Participation and Attendance

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Calendar

Meeting	Activity	Assignment
January 18	Overview	
February 4	A look at roundtable assessments	
February 11	The New York State Regents and the Next Generation Science Standards	Share the scope and sequence with the class (group) (Table framework due)
February 18	No Class - Presidents Day	
February 25	Work on the lab unit	Reflection on the first third of Lemov (chapters 1-3)

Meeting	Activity	Assignment
March 4	Lab 1 Chemistry	
March 11	Lab 2 Chemistry	Lab 1 video review
March 18	No Class - Spring Recess	
March 25	Lab 3 Chemistry	Lab 2 video review
April 1	Lab 4 Living Environment	Lab 3 video review Reflection on the second third of Lemov (chapters 4-6)
April 8	Lab 5 Living Environment	Lab 4 video review
April 15	Lab 6 Living Environment	Lab 5 video review
April 22	Lab 7 Living Environment	Lab 6 video review
April 29	Overview of the SOS Day	Lab 7 video review
May 6	ELL SOS During the Day	
May 13	Wrapup of the final presentations (10 minute summary)	Reflection on the third third of Lemov (chapters 7-9)
May 20	All work due by this date	Final Projects Due (in ebook format)

Attendance will count toward the grade. Since this course values student sharing and participation, a student with more than one unexcused absence cannot get an A in the course.

Any modification of this plan will be announced in class and posted on Blackboard.

Any student attending NYU who needs an accommodation due to a chronic, psychological, visual, mobility and/or learning disability, or is Deaf or Hard of Hearing should register with the Moses Center for Students with Disabilities at 212 998-4980, 240 Greene Street, www.nyu.edu/csd.