New York University
School of Education
Department of Teaching & Learning

SCIED-GE 2405.001 DATA AND ASSESSMENT FOR SCIENCE EDUCATORS

Fall 2012 Thursdays 4:55 - 6:35 Room: Silver 412 & New Design High School

Professors	Catherine Milne	Robert Wallace
Office	411 East Building/ Create Lab, 196 Mercer St.	239 Greene Street 4th Floor
Phone	85132, 85511	917 885 7916
Email	cem4@nyu.edu	rw56@nyu.edu
Office Hours	3.00-5.00pm Tuesday or by appointment	3:00-4:55 PM Thursday or by appointment (room Silver 412)

Objectives: Participants in this course will:

- Identify and communicate the purposes of assessment in discipline areas such as science and the developments in policy that have impacted assessment in schools.
- Evaluate a range of assessment tools and strategies (e.g., formative, summative, and standards-based, norm-based, authentic, alternative, traditional) to determine which assessment tools are appropriate for assessing student-learning development in science.
- Develop and assess methods for empowering students to assess their own work and set personal goals for learning.
- Develop a learning progression within a science content area using the concept of science content storylines and standards from standards documents and identify appropriate assessment tasks and develop rubrics
- Lead sessions with members of science departments to create common assessments and conduct norming sessions for shared rubrics.
- Interpret multiple sources of student data to identify the effect of science instruction on student learning and potential student learning problems that inform instructional planning, differentiation, curriculum design, and curricular implementation.

- Conduct research within a school to validate causes of student learning problems, as well as tracking data on suspected or identified disabilities.

- Design and implement an action plan for using assessment to inform curriculum development and science instruction with the goal of improving student achievement.

Required Course Text:

DuFour, R., & Marzano, R. J. (2011). *Leaders of learning: How district, school, and classroom leaders improve student achievement.* Bloomington, IN: Solution Tree Press.

Course Requirements:

1. **Class Readings (15%):** Reading assignments will be given in class, and will include selected articles on the context for the move to much more data analysis in schools and the role of assessment and accountability in that process.

2. **Learning progression and assessment (15%):** Work collaboratively to develop a learning progression for a major content area, compose the science content storyline that goes with it and select or develop assessment tasks that will assess various elements of the progression.

3. **Regent's exam evaluation (15%):** Critically examine some aspect of the Regents' exam including curriculum alignment, focus, assessment tasks, rubrics etc.

4. **Case Study (40%):** Details regarding the final paper will be distributed in class. For students involved in the Residency program, the final paper will be a case study of the work being completed. In addition, each student will be expected to give a 10-minute oral presentation on the last day of class. The paper will be due on this day as well.

6. **Final Exam (15%):** The final exam date will be announced. We will develop ideas about what this should look like.

Reading List
Data and Assessment for Science Educators
Fall 2012

Student pairs will be assigned a different set of readings from the list below. You and your partner will be responsible for preparing and delivering a 10 – 15 minute mini-lesson to turnkey the information from your assigned readings to the rest of the class. This lesson will be given at the beginning of the class session indicated. Focus on the main idea, the evidence that supports the main idea and the connection to issues of assessment.

September 6 Identify and communicate the purposes of assessment in discipline areas such as science and the developments in policy that have impacted assessment in schools.	**Introduction** Organizational issues **Data and Teaching** Danielson, 2007, Enhancing Professional Practice, ASCD
13 September **Accountability and the role of data**	**Accountability and the role of data – What are some of the factors that precipitated a greater focus on data?** Readings: Dufour & Marzano Introduction and Chapter 1. Jerald, C. (2003). Beyond the rock and the hard place. *Educational Leadership, 61*(3), 12-16.
20 September **What is assessment?**	*What is assessment?* Wilson, M. (2004). Assessment, accountability and the classroom: A community of judgment. In M. Wilson (Ed.), *Towards coherence between classroom assessment and accountability* (pp. 1-19). 103rd Yearbook of the National Society for the Study of Education Pt. 2. Chicago, IL: University of Chicago Press. Tashlik, P. (2010). Changing the national conversation on assessment. Phi Delta Kappan, 55-59.
27 September **Forms of assessment** Evaluate a range of assessment tools and strategies (e.g., formative, summative, and standards-based, norm-based, authentic, alternative, traditional) to determine which assessment tools are appropriate for assessing student-learning development in science.	**Forms of assessment** *Standards-referenced, criterion-referenced, norm-referenced: explaining the difference.* New Zealand National Standards. Zucker, S. (2003). *Fundamentals of standardized testing*. San Antonio, TX: Pearson.
4 October **Forms of assessment continued (include portfolio).**	Black, P. & Wiliam, D. (2004). The formative purpose: Assessment must first promote learning. In M. Wilson (Ed.), *Towards coherence between classroom assessment and accountability* (pp. 20-50). 103rd Yearbook of the National Society for the Study of Education Pt. 2. Chicago, IL: University of Chicago Press. *Frey, B. B., Schmitt, V. L., & Allen, J. P. (2012). Defining authentic classroom assessment.* Practical Assessment, Research, & Evaluation, 17*(2), 1-18.*
October 11	Project work

October 18 **Student Self-Assessment** Develop and assess methods for empowering students to assess their own work and set personal goals for learning.	**Student Self-assessment** Sadler, P. M., & Good, E. The impact of self- and peer-grading on student learning. *Educational Assessment, 11,* 1-13. Pintrich, P. R. (2002). The role of metacognitive knowledge in learning, teaching and assessing. *Theory into Practice, 41,* 219-225. Rolheiser, Carol, & Ross, John A. Student self-evaluation: what research says and what practice shows. http://www.cdl.org/resource-library/articles/self_eval.php/
October 25	**NEASTE at BRF** **Project work**
November 1 **Learning Progressions** Develop a learning progression within a science content area using the concept of science content storylines and standards from standards documents and identify appropriate assessment tasks and develop rubrics	**Developing learning progressions and assessment** Committee on Conceptual Framework for the New K-12 Science Education Standards. (2011). *A framework for K-12 science education: practices, crosscutting concepts, and core ideas*. Washington, DC: National Academies Press. Case, B., Jorgensen, M. A., Zucker, S. (2004). Alignment in educational assessment. San Antonio, TX: Pearson. Dufour & Marzano Chapter 5 Corcoran, T., Mosher, F. A., & Rogat, A. (2009). *Learning progressions in science: An evidence-based approach to reform.* New York: Consortium for Policy Research in Education: Teachers College. ***Dufour & Marzano Chapter 4 & 6***
November 8 **Standards based grading**	**Standards based grading** Popham, W. J. (2007). The lowdown on learning progressions. *Educational Leadership, 64*(7), 83-84. http://www.ascd.org/publications/educational-leadership/apr07/vol64/num07/The-Lowdown-on-Learning-Progressions.aspx **Standards-based Grading:** http://adventureswiththelowerlevel.blogspot.com/2012/08/chemistry-standards-2012.html

November 15 **Data Analysis in the schools** Lead sessions with members of science departments to create common assessments and conduct norming sessions for shared rubrics.	**Data Analysis in the schools** Confrey, J., Makar, K., Kazak, S. (2004). Undertaking data analysis of student outcomes as professional development for teachers. *ZDM: The International Journal of Mathematics Education, 36,* 32-40. Guskey, T. R. (2002). Computerized gradebooks and the myth of objectivity. *Phi Delta Kappan, 83,* 775-780. The Advantages of rubrics *http://www.teachervision.fen.com/teaching-methods-and-management/rubrics/4522.html*
November 22 **Thanksgiving Recess**	**Thanksgiving Recess**
November 29 **Backward Design**	**Backward Design** McDonald, J., Dominguez, L. A., Kromer, T. (2009). Designing assessment for science instruction: using the backwards design process. *MSTA Journal, Spring,* 2-10.
December 6 **Standards Based Exams** Interpret multiple sources of student data to identify the effect of science instruction on student learning and potential student learning problems that inform instructional planning, differentiation, curriculum design, and curricular implementation.	**Standards Based Exams** *Shiland, T. (2004). Learning from standards-based exams.* The Science Teacher, 71, *47-49.*
December 13 **Presentations**	***Presentations***
20 December	*Exam*