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Office Hours
Tuesday: 3-5 PM
Others by appointment

Department of Curriculum and Instruction Course Syllabus

EDCI 654 - Assessing Mathematical Understanding (3 credit hours). Prerequisites: EDCI 650 or permission of department. Techniques of assessing K- 14 students' understanding of mathematics--including standardized tests but focusing on alternative forms such as individual interviews, writing tasks, performance tasks, portfolios. Assessment viewed as an ongoing part of mathematics instruction.

COURSE OVERVIEW

The goal of the graduate programs at UMCP is to prepare reflective practitioners for classrooms of diverse learners, through research-based inquiry. This course is designed to enhance the pedagogical knowledge of elementary, secondary, and early college level teachers. The course provides students exposure to changing views of assessment as the goals of mathematics education have changed, research about assessment and resources for assessing learners' understanding of mathematics. It views assessment as an integral part of instruction and also attends to knowledge about pedagogy, mathematics, learners, and the social context of education. Careful reflection on practice and interpretation of students' work are important aspects of the courses. Students' understanding of mathematics--including standardized tests but focusing on alternative forms such as individual interviews, writing tasks, performance tasks, portfolios.

REQUIRED TEXTBOOKS

Purchase the ONE of the following that is most relevant to your grade level. For community college, use the grade 9-12 text.

Bush, W. & Leinwand, S. (2000) Mathematics assessment: A practical handbook, grades 6-8. Reston, VA: National Council for Teachers of Mathematics.

Bush, W. & Greer, A. (2001) Mathematics assessment: A practical handbook, grades 9-12. Reston, VA: National Council for Teachers of Mathematics.

Glanfield, F., Bush, W., & Stenmark, J. (2003). Mathematics assessment: A practical handbook, grades K-2. Reston, VA: National Council for Teachers of Mathematics.

Bush, W. & Greer, A. (2001) Mathematics assessment: A practical handbook, grades 9-12. Reston, VA: National Council for Teachers of Mathematics.

Stenmark, J., & Bush, W. (2001) Mathematics assessment: A practical handbook, grades 3-5. Reston, VA: National Council for Teachers of Mathematics.

[The fastest way to get the book maybe via credit card at NCTM 1-800-235-7566 or online at nctm.org.]

COURSE REQUIREMENTS PROJECTS:

In addition to the weekly readings form the textbook and outside sources, the following assignment will be used for grading purposes. A more complete description of each assignment and timeline will follow. Note that participation, which will involve a number of rounds of peer reviews and some activities that must be done in class, is a portion of the grade.

- Adapt a textbook homework assignment or quiz to reflect attention to higher order thinking, to be more open and to be more revealing of students' understanding. Provide an analysis of and rationale for the changes.
- Adapt, administer, and analyze a set of three alternative assessment activities. Include an analysis of the work of three students on each assessment. Include reflections on teaching and the assessment. This will become your portfolio of work.
- Develop an annotated bibliography of resources for performance assessment or other non-routine mathematics assessments for the population you teach or have interest in teaching. [**Not** required of doctoral students]
- Prepare an analysis of a sample of actual student work. This may come from a student assignment assessment done in your or a colleagues class. If you are not teaching, we will attempt alternatives or find you a set of papers.
- Prepare an analysis of a standardized test appropriate to your grade/interest level.

<u>(Doctoral students only)</u>

- Prepare a class presentation/discussion/activity of about 90 minutes duration (negotiated with the instructor) on an assigned reading/topic. Write a rationale and resource paper that supports the presentation.

EVALUATION

Required activities and projects are worth points as follows:

Adapted Assignment	20
Alternative Assessment Portfolio	100
Analyzing student work	50
Annotated Resource Bibliography for Mathematics Assessment*	40
Standardized Test Analysis	40
Other brief assignments and participation	50
TOTAL	300

(*Doctoral students only; omit Resource Bibliography)

Lead Class Activity (Read outside of text, present, reflect)	40
Prepare a resource paper related to the presentation.	50

Course grades will be assigned based on the percentage of possible points earned. The scale used in grading will reflect the following guidelines and the bunching and distribution of total point scores (i.e., persons separated by one or two points will receive the same grade.) In no case will you receive a grade lower than the scale indicates. The use of + and - will reflect position in the range.

For masters degree students the scale will be:

A 100-90% (300 - 270 points)
B 80-89% (240 - 269 points)
C 70- 79% (210 - 239 points)
D ≤ 69% (209 or fewer points)

For doctoral students the same percent scale will be used but the percentages will be based on 350 points.

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit
http://www.studenthonorcouncil.umd.edu/whatis.html.

The Student Honor Council proposed and the University Senate approved an Honor Pledge. †The University of Maryland Honor Pledge reads:

> *"I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination."*

Unless you are specifically advised to the contrary, the Pledge statement should be written and signed on the front cover of all papers, projects, or other academic assignments submitted for evaluation in this course. Students who fail to write and sign the Pledge will be asked to confer with the instructor

Plagiarism is, unfortunately a common form of dishonesty. If you have any questions about the definition or seriousness of this, please consult the website listed above.

Class attendance is expected. Extra credit work will NOT be accepted. Only in very exceptional cases is it possible to change a grade by repeating or correcting an assignment. Unexcused late assignments will not be graded.

If you have a documented disability and wish to discuss academic accommodations with me, please contact me as soon as possible.

OTHER RESOURCES:

Burrill, J. (Ed.). (2005). Mathematics Assessment Sampler, Grades 6-8. Reston, VA: National Council of Teachers of Mathematics.

Driscoll, M., & Bryant, D. (1998). *Learning about assessment, learning through assessment.* (Mathematical Sciences Education Board, National Research Council). Washington, DC: National Academy Press.

Gawronski, J. (Ed.). (2005). Mathematics Assessment Sampler, Grades 3-5. Reston, VA: National Council of Teachers of Mathematics.

Gold, B., Keith, S. Z., & Marion, W. (Eds.). ((1999). *Assessment practices in undergraduate mathematics* (MAAA Notes #49). Washington, DC: The Mathematical Association of America.

Herman, J., Aschbacher, P., & Winters, L. (1992). *A practical guide to alternative assessment.* Alexandra, VA: Association for Supervision and Curriculum Development.

Lambdin, D. Kehle, P. & Preston, R. (Eds.). (1996). *Emphasis on Assessment*. Reston, VA: National Council of Teachers of Mathematics.

Mathematical Sciences Board. (1993). *Measuring What Counts: A conceptual guide for mathematics assessment.* Washington, DC: National Academy Press.

National Research Council. (2001) *Knowing what students know: The science and design of assessment*. Committee on the Foundations of Assessment. Pelligrino, J., Chudowsky, N., and Glaser. R. (Eds.) Board on Testing and Assessment, Center for Education. Division of Behavioral and Social Sciences ands Education. Washington, Washington, DC: National Academy Press.

Romberg, T. (Ed.). (1992). *Mathematics assessment and evaluation: Imperatives for mathematics education.* Albany, NY: SUNY Press .

Shannon, A. (1999). *Keeping score.* (Mathematical Sciences Education Board, National Research Council). Washington, DC: National Academy Press.

Stenmark, J. (Ed.) (1991). *Mathematics assessment: Myths, models, good questions and practical suggestions*. Reston, VA: National Council of Teachers of Mathematics.

Webb, N. (1993). *Assessment in the mathematics classroom* (1993 Yearbook). Reston, VA: National Council of Teachers of Mathematics.

Wiggins, G. P. (1993). *Assessing student performance: Exploring the purpose and limits of testing.* San Francisco: Jossey-Bass.

Wiggins, G. P. (1998). *Educative assessment: Designing assessment to inform and improve student performance.* San Francisco: Jossey-Bass.

TOPICS and ACTIVITIES

This course focuses on assessment as a reflection of what is valued and as a means of getting at students understanding. It is not a course in measurement or statistics. We will be looking at standardized tests as well as examples of performance assessments such as the MSA and HSA tests . The major topics, activities, readings, and assignment due dates are shown in the below.

CLASS DATE	TOPICS	DUE THIS DATE	READ FOR NEXT WEEK
January 25	Introductions; Course Overview Issues in Assessment/Testing, Purposes of Assessment, Reform in Assessment, Testing Terminology Experiencing 2 Forms of Assmnt		**ALL**: Excerpt from *Knowing what students know:* **K-2; 3-5; 6-8; 9-12 Intro. and Chapter 1 of text.** Skemp article
February 1	What Does Understanding Some Mathematics Mean? (Relating Learning Theory to Assessment) What is Mathematical Proficiency?	My Assessment Schedule Due	**K-2**; 14-26 **3-5** –22-35 **6-8** 10-20 **9-12:** 10-18 **All:** E. Davis article
February 8	Adapting Routine, Closed Tasks to More Challenging and Diagnostic Tasks, Perhaps More Open Tasks		**K-2:** 90-92 +Smith art. **3-5:** 83-84 + Gould art. **6-8:** 42-44; 76-79 **+** Diezmann-& English art **9-12** 30-33, 63-64.+Mayer & Hillman art.
February 15:	Using Writing to Assess Student Understanding	Adapted Assignment Due	**ALL**: Novak & Gowin, pp 15-37 & **K-2:** Franke & Carey **3- 8**: Baroody and Bartels **9-12**: Wilcox
February 22:	Using Concept Maps to Assess Student Understanding		**K-2:** 69-89 **3-5:** 27-35; 118-132 **6-8:** Danielson & 94-108 **9-12:** Danielson & 90 - 100
March 1	Performance Assessments Rubrics		
March 8	Performance Assessments Peer Review Time	Draft of 1st alternative assessment portfolio entry due for peer review	**K-2:** 52-68 **3-5:** 36-46 & 62-68 **6-8 :**40-41 & 68-70 **9-12**: 27-29 & 57-62
March 15	Using Interviews to Assess Student Understanding	1st alternative assessment portfolio entry due for peer review	**K-2:** 47-51 & Franke & Carey **3-5:** 38 & 72-76 & Silver & Cai **6-8:** 26-29; 74; 86-93; 106 Kenney & Silver **9-12:** 27-29; 57b-62 & Schoenfeld

DATE	TOPICS	DUE	READ FOR NEXT WEEK
March 22 (UM Spring Break, but class)	Using Observations to Assess Learning and Dispositions Techniques for Self Assessment		**TBA**
March 29	Some Technical Issues in Test Construction	Draft of 2nd alt, assessment portfolio due for peer review.	Darling Hammond article
April 5	Equity Issues in Testing	2nd alternative assessment portfolio entry due	**TBA**
April 12	MCPS & PGPS **BREAK NO CLASS**	NO CLASS	
April 19	TBD or Issues in large scale Testing; e.g., for NCLB; MSA, HSA NAEP;		**TBA**
April 26	Standardized Test Analysis Work Session	Analyzing Student Work Assignment Due	**TBA**
May 3	TBD	Annotated Bibliography of Resources Assignment Due	**K-2**: 100-119 **3-5:** 91-36 **6-8:** 94-115 **9-12**: 90-115
May 10	Reflections and Course Evaluation	Third (final) alternative assessment portfolio entry due.	
May 17	Last possible class. If no snow days during the semester, only hand in last assignment.	Standardized Test Analysis Due	