Course Description:

This course is a balanced study between theoretical research-based foundations and classroom reform-based perspectives to assessment and evaluation in school mathematics. Alternative forms of assessment and evaluation of mathematics teaching and students’ mathematical learning will be considered. Topics include historical perspectives on assessment, assessment standards, and assessment planning including methods, tasks, and scoring.

Course Overview:

In this course we will consider multiple forms and purposes of assessment in the context of ongoing efforts to transform mathematics education in our nation’s schools and classrooms. A central goal of this reform work is to develop the mathematical power of all students. By mathematical power we mean an individual’s ability (1) to reason, effectively communicate, and solve problems using mathematics concepts, processes, and tools, and (2) to develop mathematical habits of mind in order to engage in organized ways of thinking to understand mathematical ideas and issues.

In this course our aim is to consider what it means to provide opportunities for all students to demonstrate what they know and what they can do in mathematics. We will learn how to assess what students are coming to understand and use this assessment to make instructional decisions. We will develop ways to document and report on students’ accomplishments. We will consider a wide range of assessment issues that are philosophical, epistemological, pedagogical, and practical. Throughout the course we will consider several themes that emerge as we discuss assessment that is integral with curriculum, teaching, and learning.

Course Themes:
Theme 1: What is involved in assessing a students’ understanding of mathematics?
Theme 2: In what ways can assessment as an ongoing activity be used effectively?
Theme 3: In what ways can the quality of assessments be judged?
Theme 4: What is the interaction between assessment, instruction, and curriculum?
Theme 5: In what ways can students’ responses on assessment tasks be interpreted and scored?

Required Texts:


Supplemental readings will be supplied by your instructor.
**Course Evaluation:**

Your grade will be determined on a point basis as outlined below.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Points</th>
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<tbody>
<tr>
<td>Class Discussion Facilitator</td>
<td>15</td>
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<tr>
<td>Assessment Interview</td>
<td>25</td>
</tr>
<tr>
<td>Task/Assessment/Presentation</td>
<td>25</td>
</tr>
<tr>
<td>Reflective Writing</td>
<td>10</td>
</tr>
<tr>
<td>Attendance and Participation</td>
<td>5</td>
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<tr>
<td>Final Exam</td>
<td>20</td>
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</tbody>
</table>

100 points

**Grading:**

- 90 points and above A
- 80-90 points B
- 70-80 points C

**Course Assignments:**

*Class Discussion Facilitator.* (date and readings to be determined) You will lead the class discussion of the assigned readings for one class session during the semester. You will prepare questions in advance of the session that will illuminate and generate discussion on the themes and issues raised in the assigned readings. You will prepare a typed set of the questions which you will give to everyone in class at the beginning of the discussion.

*Assessment Interview.* You will assess one student’s understanding of mathematics concepts in one content domain of your choice through an assessment interview. You will prepare an interview protocol containing assessment items for one student at a grade level of your choice. You will share the protocol in class and submit the protocol to me for comments prior to using it. You will then conduct the interview and write a report that includes your interpretation of the student’s responses using evidence from the interview to support your conclusions. You will suggest an instructional program for the student based on the information you gathered during the interview.

*Preparation of performance task/assessment/class presentation.* You will prepare an assessment task (or a set of tasks) that assesses students’ mathematical knowledge in one content domain of your choice. You will prepare the accompanying scoring rubric(s). You will ask a class of students to complete the task(s) and score student responses according to your rubric(s). You will present the results during a class presentation in which you share the task(s) and rubric(s), particular student responses, your interpretation of these responses, and changes you might make for the next time you use this assessment.

*Reflective Writing.* Writing should be incorporated as part of the ongoing activities in the mathematics classroom. We will experiment with writing in our course as a vehicle for learning about mathematics assessment and reflecting on what we are thinking and learning about the themes and issues around which the course is organized. You will write (and type, double spaced) each week about your own sense-making of the readings for that session. The aim is to provide a formal way for you to critically reflect about the ideas that emerge through the course readings and activities. I will collect your writing each week and will respond to your writing with my own written feedback. I would prefer the reflective writings done out of class be typed.
Final Exam. The final exam is a collection of assessment tasks that assess students’ mathematical knowledge in content domains of your choice. You will prepare five tasks (or five sets of tasks) and accompanying scoring rubrics. Do not use tasks from class discussions and presentations or tasks that you have prepared for other courses. Include the following for each task (or set of tasks): (1) the original task and the source of the task; (2) the task with your modifications; and (3) the scoring rubric.

Schedule for Assignments:

Reflective Writings—Ongoing except the session in which you are class discussion
Class discussion facilitators (one person per session): (dates to be announced)
Preparation of Student Assessment Interview—February 22
Student Interview Report Due—March 22
Assessment Presentation—March 29 and April 5, 12, 19, 26 and May 3
Final exam: Assessment Tasks/Rubrics—May 10

Readings Schedule for January

<table>
<thead>
<tr>
<th>Session</th>
<th>Date</th>
<th>Topic</th>
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| 1       | Jan. 18 | *Assessment through classroom discourse*  
| 2       | Jan. 27 | *What is assessment? What is involved in assessing a student’s understanding of mathematics?*  
*NCTM Assessment Standards*, pp. 1–22, 82–83  

Readings Schedule for February

<table>
<thead>
<tr>
<th>Session</th>
<th>Date</th>
<th>Topic</th>
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| 3       | Feb. 1 | *What is assessment? What is involved in assessing a student’s understanding of mathematics?* (cont’d)  
*Purpose of assessment*  
• *NCTM Assessment Standards*, pp. 25–65  
• *NCTM Principles and Standards* (2000), Assessment Principle  
4    Feb. 8   Purposes of assessment (cont’d)
Classroom and large-scale assessment
• Black, P., & Wiliam, D. (1998). Inside the black box. Phi Delta Kappan 80(2), 139–148. (Download from NIU Libraries: http://niulib.niu.edu. Select “Articles and More.” Under Social Sciences, select Education. Select either ERIC (CSA) or ERIC (FirstSearch). Enter authors’ last names with the word “and” between them. Caution—Wiliam is spelled with only one “L.”)
• Romberg, Chapter 1: Romberg, T. A., & Wilson, L. D. Issues related to the development of an authentic assessment system for school mathematics, pp. 1–18.

5    Feb. 15   Classroom and large-scale assessment (cont’d)
Assessment tasks
• Romberg, Chapter 3, Silver, E. A., & Kenney, P. A. Sources of assessment information for instructional guidance in mathematics, pp. 38–86.

6    Feb. 22   Assessment tasks (cont’d)
Assessment planning
• Romberg, Chapter 4: de Lange, J. No change without problems, pp. 87–172.
• Dekker, T., & Querelle, N. (2002). The great assessment problems book (GAP). Utrecht, The Netherlands: Freudenthal Institute. Chapters 1-5 and 10. Available for downloading at www.fi.uu.nl/catch/ (Scroll down on the web page and select “all twelve chapters.” Then select the assigned chapters. If you have trouble downloading these chapters (they are Word documents), let me know and I will send them to you as attachments to email.

Readings Schedule for March

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<tr>
<th>Session</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>7</td>
<td>March 1</td>
<td>Interviews</td>
</tr>
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8 March 8  
**Assessment Tasks and Planning**


9 March 22  
**Scoring Rubrics**


10 March 29  
**Communication**


# Readings Schedule for April

<table>
<thead>
<tr>
<th>Session</th>
<th>Date</th>
<th>Topic</th>
<th>Topic Details</th>
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<tbody>
<tr>
<td>11</td>
<td>April 5</td>
<td>Large-scale assessment</td>
<td>Assessing cooperative group problem solving</td>
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</tbody>
</table>
|         |         |                                |   • Romberg, Chapter 5, Stake, R. E. The invalidity of standardized testing for measuring mathematical achievement. Sources of assessment information for instructional guidance in mathematics, pp. 173-235.  
| 12      | April 12| Large-scale assessment         | Observation   |
| 13      | April 19| Large-scale assessment         | Portfolios    |
| 14      | April 26| Large-scale assessment         | Assessment Case |
### Readings Schedule for May

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<thead>
<tr>
<th>Session</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>15</td>
<td>May 3</td>
<td>Final Thoughts</td>
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