EDU 377 Math Teaching Methods
Course Syllabus — Fall 2010

"Education is no longer just a pathway to opportunity and success, it's a prerequisite for success."
President Barack Obama, March 2010

Professor:  Dr. Annette Nelson  Email:  ANelson@northland.edu
Office:  Wheeler Room 212  Phone:  715.682.1673
Class:  TR, 8:00 – 9:50 am  Office Hours:  TR, 10:00 to noon and by appointment

REQUIRED TEXTS AND MATERIALS


Note: These standards have been replaced by the Common Core State Standards for Mathematics as of June 2010. The full 93-page standards document can be downloaded from the same DPI website. Mathematics standards are identified for each grade level from kindergarten through 8th, with the high school standards identified according to six conceptual categories.


USEFUL WEBSITES
www.ala.org/aasl/bestlist  Best websites for teaching and learning ranked by librarians
www.wismath.org  Wisconsin Math Council
www.nctm.org  National Council of Teachers of Math
www.mathaware.org  Mathematics Awareness Month
www.mathforum.org/students  Math Forum's Student Center
www.plus.maths.org  Plus magazine (career info, puzzles, podcasts)
www.ams.org/posters/  Free math topics posters
www-groups.dcs.st-andrews.ac.uk/~history/  History of math archive (mathematicians, timelines, quotations)

Teaching Children Mathematics
Mathematics Teaching in the Middle School
Mathematics Teacher
RECOMMENDED READINGS


PROFESSIONAL ORGANIZATIONS
American Mathematics Society (AMS) www.ams.org
American Statistical Association (ASA) www.amstat.org
Association for Women in Mathematics (AWM) www.awm-math.org
Mathematical Association of American (MAA) www.maa.org
Society for Advancement of Chicanos and
Native Americans in Science (SACNAS) www.sacnas.org
Society for Industrial and Applied Mathematics (SIAM) www.siam.org

COURSE DESCRIPTION
Prerequisite: Junior standing and admission to the Teacher Education Program
Students will explore instructional pedagogy in the area of mathematics. Teaching experiences will give students the opportunity to apply methods in a K-12 classroom. Field experience: 20 hours for elementary education majors and 40 hours for secondary majors.

Note: Completion of a criminal background check is a requirement of this course prior to being placed in the K-12 classroom. The required form will be provided in class, and there is no cost to you unless it is determined that a federal background check is required.

COURSE OBJECTIVES AND INTENDED LEARNING OUTCOMES
This course is designed to be interactive, as the content is planned to engage you in hands-on, minds-on learning through problem-solving activities, micro-teaching experiences, and project-based cooperative group work based on the Wisconsin Department of Public Instruction initial educator standards.

The overarching goal of this course is that upon completion, the engaged pre-service teacher will be able to design and assess effective models of math instruction for students. This course is designed to be interactive, as the content is planned to engage you in multiple forms of hands-on, minds-on learning.

The course ILOs are linked to the initial educator standards of the Northland College Teacher Education Program and the state of Wisconsin Department of Public Instruction as indicated in parentheses.

Upon completion of this course, the engaged pre-service teacher will be able to:
1) explore and analyze various ways of mathematical understanding and connect these ways of understanding to specific mathematical content areas and teaching strategies (Standards 2, 3, 4);
2) develop knowledge in and investigate the National Council of Teachers of Mathematics (NCTM) process standards of problem solving, reasoning and proof, communication, connections, and representation in the context of teaching and learning mathematics, and integrate these process standards into the design and implementation of mathematics lessons (Standards 4, 7, 8);
investigate the Common Core State Standards for Mathematics in context of the teaching and learning of K-12 school mathematics (Standards 1, 4, 7, 8).

ATTENDANCE, PARTICIPATION, AND ENGAGEMENT
Participation in class discussions and presentations is an important part of this class. You are expected to attend each class ON TIME, remain for the entire class period, and be prepared to discuss the assignment. It is your responsibility to find out from other students in the class what you missed if absent. Copies of handouts will be available in my office after class. Absence is not an excuse to miss assignment due dates.

Participation means more than just attending the class. You are expected to demonstrate active engagement (hands on and minds on) in all activities and assignments—both in and out of class.

- Participation means being a good listener and contributing to the discussion and making meaningful comments, both in small group and whole class situations.
- Participation means asking questions and actively encouraging your classmates to contribute, but please do not monopolize discussions.

COMMUNICATION
You must activate your Northland College email account and check it daily for messages. I will only respond to your Northland College account. Email is the easiest and quickest way to contact me with your questions and comments. I will also use email to make important class announcements and share class resources.

ACCOMMODATIONS
If you are in need of academic or medical accommodations, contact Mrs. Patti Fenner-Leino, the Disabilities Coordinator, at 682.1230 or Ponzio Room 229.

RECORDINGS
Any form of video and/or audio recordings of any part of this class or its content is prohibited unless approved by the instructor in advance.

COURSE ETHICS
You are expected to listen carefully and respectfully to both the professor and other students’ contributions and discussions in class. Side discussions and comments are disrespectful and distracting. Disrespect, language, comments, or actions that are in bad taste will not be tolerated. Please be sure to turn off your cell phone, pager, and all other electronic devices during class. Students who do not conduct themselves in a respectful manner will be asked to leave the classroom. If a situation arises where you must arrive late for class, please enter quietly and take the first available seat. Do not bring friends, children, pets, meals, or anything else to the class that should not be there.

Plagiarism and cheating in any fashion also will not be tolerated. When you use material from other sources, you must acknowledge the source. Not doing so is called plagiarism, which means using without credit the ideas or expressions of another. You are, therefore, cautioned (1) against using, word for word, without acknowledgment, phrases, sentences, paragraphs, photographs, etc., from the printed or online material of others; (2) against using with only slight changes the materials of another; and (3) against using the general plan, the main headings, or a rewritten form of someone else’s material. These cautions apply to the work of other students as well as to the published work of professionals.
Of course, these cautions also apply to information you find on the Internet, World Wide Web, or other electronic or online sources. If you are in doubt, please ask me far in advance of the due date, since the consequences for plagiarism are severe. In this class, anyone who plagiarizes fails the course.*

Cheating includes using any type of unauthorized notes, study aids, crib sheets, or information on a test, homework, or any other coursework. While you are encouraged to work and study together, be sure the work you submit is your own!

**CHEATING IN ANY FORM WILL RESULT IN FAILURE OF THE COURSE.**

**INCOMPLETE GRADE**
Under Northland College policy, an incomplete grade will be given ONLY under extreme circumstances beyond your control, such as a major illness. An incomplete grade will be given ONLY if you have successfully completed the entire course except for the final exam. If the final exam is not completed by the incomplete deadline, a grade of zero will be entered and the final grade will be calculated based on the points completed.

**ASSESSMENT**
Assessment will take place through various methods of evaluation. The due date for each item is identified on the class calendar. *Ten points will be deducted for each calendar day an item is submitted past the due date.* Grades will be determined through points earned as follows:

<table>
<thead>
<tr>
<th>ASSIGNMENT</th>
<th>POSSIBLE POINTS</th>
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<tbody>
<tr>
<td>Attendance and Active Participation (20 @ 5 points)</td>
<td>100</td>
</tr>
<tr>
<td>Math Content Area Assessments (5 @ 100 points)</td>
<td>500</td>
</tr>
<tr>
<td>Observed Classroom Lesson w/Plan</td>
<td>150</td>
</tr>
<tr>
<td>Field Experience Journal (20 @ 5 points)</td>
<td>100</td>
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<tr>
<td>Final Exam</td>
<td>150</td>
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The following points scale will be used to determine the final grade:

- **B+** = 87 - 89%
- **B** = 83 - 86%
- **C+** = 77 - 79%
- **C** = 73 - 76%
- **B-** = 80 - 82%
- **C-** = 70 - 72%
- **D+** = 67 - 69%
- **D** = 60 - 66%
- **D-** = 57 - 59%
- **F** = < 60%

**COURSE ASSIGNMENTS**
Active participation means that you are involved and taking an active role in the discussions and activities taking place during the class. This is impossible to do if you are not present!! Because the assignment due dates are posted in advance, there should be no late assignments; however, if a written assignment is submitted late, *ten points will be deducted for each calendar day it is late.* There will be no makeup if a scheduled presentation or lesson is missed.

You will be required to submit a variety of assignments to demonstrate your competencies in each area. These assignments allow you to provide evidence of your mastery of course objectives. The evaluation rubrics will be provided in class and will be reviewed prior to the due date to help you understand precisely how the assignment will be graded while also allowing you to self-assess your work before submitting it.
You should carefully examine the rubric to be sure you understand what is expected of you for each assignment. For all assignments, use Microsoft Word processing software (1997 version or newer), left justified, and a 1” margin for the top, bottom, left and right sides. Use a 12-point font that is easy to read, such as Times New Roman, Courier, or Arial. If you use a non-IBM computer, it is your responsibility to ensure compatibility and that your documents display the correct settings and formatting.

**Remember**...correct grammar and spelling always count! Before you turn in each assignment for grading, be sure you have followed the directions carefully. Then organize your assignment with the title page, evaluation rubric, followed by the assignment. Remember also that the appearance of each assignment is important. You are turning in work that demonstrates your competency and professionalism. Assignments and/or files submitted electronically that cannot be opened for any reason will be considered not turned in!

**Math Content Area Assessments**
There will be a math content area assessment according to the class calendar covering each of the five primary areas of statistics and probability, number theory and algebra, geometry, data analysis, and measurement. For these assessments, you will be required to present micro-lessons or solution strategies to your classmates either as an individual or as a member of a cooperative learning group. After delivering the lesson and/or strategy, classmates will provide you with written feedback and suggestions. **Within one week** of presenting your lesson and/or strategy, you are to complete a one-page reflection in which you address the strengths and weaknesses of your presentation, in what ways you would implement or modify the recommendations of your classmates, and what you learned from preparing and presenting the lesson and/or strategy.

**Observed Classroom Lesson with Detailed Lesson Plan**
During your field experience hours, you must present two different math lessons to your assigned class. One lesson will be observed and evaluated by your classroom teacher, and the other lesson will be observed and evaluated by your college instructor. The evaluation forms for both will be provided in class. For the lesson observed by your college instructor, there must be a completed lesson plan and reflection submitted within one week after being observed.

**Field Experience Journal**
Each hour of your field experience must be documented in your field experience journal. The timesheet should be maintained in the journal, and it must be completed and signed by both you and your classroom teacher before your final grade can be entered. The journal and timesheet are due by **4:00 pm on Friday, November 5, 2010**. The proper format, content, and grading rubric for the journal entries will be provided in class prior to your first placement.

**Final Exam**
Attendance and participation at the final exam is required! During part of this we will discuss and reflect upon the various aspects of project- and problem-based math instructional strategies. The other part of this time will be a written portion covering the material presented in class. The final exam for this course is scheduled for **Thursday, December 16, 2010, from 8:00 to 9:50 am**.

> Only as high as I reach, can I grow.
> Only as far as I seek, can I go:
> Only as deep as I look, can I see:
> Only as much as I dream, can I be. —Karen Ravn

* Plagiarism language was adopted and modified with permission from its original form at http://owl.english.purdue.edu/owl/resource/589/05/.
<table>
<thead>
<tr>
<th>DAY</th>
<th>DATE</th>
<th>TOPIC</th>
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<tbody>
<tr>
<td>Thursday</td>
<td>September 9</td>
<td>Introduction to class; review syllabus, calendar, and assignments</td>
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<tr>
<td>Tuesday</td>
<td>September 14</td>
<td>Bookmaking techniques</td>
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<tr>
<td>Thursday</td>
<td>September 16</td>
<td>Project #1 Introduction</td>
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<tr>
<td>Tuesday</td>
<td>September 21</td>
<td>Project #1 Development</td>
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<tr>
<td>Thursday</td>
<td>September 23</td>
<td>Project #1 Presentations</td>
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<tr>
<td>Tuesday</td>
<td>September 28</td>
<td>Project #1 Presentations</td>
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<tr>
<td>Thursday</td>
<td>September 30</td>
<td>Field experience requirements, forms, and teaching schedules</td>
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<tr>
<td>Tuesday</td>
<td>October 5</td>
<td>Field experience and teaching evaluations</td>
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<td>Thursday</td>
<td>October 7</td>
<td>Field experience and teaching evaluations</td>
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<td>Tuesday</td>
<td>October 12</td>
<td>Field experience and teaching evaluations</td>
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<td>Thursday</td>
<td>October 14</td>
<td>Field experience and teaching evaluations</td>
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<td>Tuesday</td>
<td>October 19</td>
<td>Field experience and teaching evaluations</td>
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<td>Thursday</td>
<td>October 21</td>
<td>Field experience and teaching evaluations</td>
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<td>Tuesday</td>
<td>October 26</td>
<td>Field experience and teaching evaluations</td>
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<td>Thursday</td>
<td>October 28</td>
<td>Field experience and teaching evaluations</td>
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<td>Tuesday</td>
<td>November 2</td>
<td>Field experience reflections; Project #2 Introduction</td>
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<td>Thursday</td>
<td>November 4</td>
<td>Project #2 Development</td>
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<tr>
<td>Tuesday</td>
<td>November 9</td>
<td>Project #2 Presentations</td>
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<td>Thursday</td>
<td>November 11</td>
<td>Project #2 Presentations</td>
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<td>Thursday</td>
<td>November 18</td>
<td>Project #3 Development</td>
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<td>Tuesday</td>
<td>November 23</td>
<td>Project #3 Presentations</td>
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<tr>
<td>Thursday</td>
<td>November 25</td>
<td>Thanksgiving Break</td>
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<td>Tuesday</td>
<td>November 30</td>
<td>Project #4 Introduction</td>
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<td>Thursday</td>
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<td>Project #4 Development</td>
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<td>Tuesday</td>
<td>December 7</td>
<td>Project #4 Presentations</td>
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<td>Thursday</td>
<td>December 9</td>
<td>Project #5 Introduction and Development</td>
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<td>Tuesday</td>
<td>December 14</td>
<td>Project #5 Presentations</td>
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<tr>
<td>Thursday</td>
<td>December 16</td>
<td>Final Exam</td>
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*The professor reserves the right to modify the course syllabus and/or calendar as necessary.*