SYLLABUS

MATH 277 Mathematics for Elementary Teachers I

Course Description: This course is a mathematics methods course for prospective elementary school teachers and paraprofessionals. Topics include problem-solving, numeration systems, real numbers, and elementary number theory. Calculators, computers, and manipulatives are used in the course.

- **Credits:** 3 semester credits
- **Prerequisite(s):** MATH 103 or instructor approval
- **Class Schedule:** Thursday, 4:30-6:10 PM

Course Objectives/Student Outcomes

It is expected that students will be able to:

- Demonstrate an understanding of the mathematical concepts taught at the elementary level
- Communicate to others an understanding of elementary-level mathematics by writing reflections on methods of teaching and by explaining strategies and steps used in problem-solving
- Use manipulatives and models to demonstrate and explain the mathematical processes used in problem-solving
- Utilize many distinct problem solving strategies
- Demonstrate an understanding of developmental processes in learning mathematics through the selection of age-appropriate strategies

Instructor: Jan Nahinurk

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Textbook: *Mathematics for Elementary Teachers: A Conceptual Approach* with Manipulative Kit

- Author: Bennett, A. B. and Nelson, L. T.
- Publisher: McGraw-Hill
- Edition/Year: 10th Ed.
- ISBN #: 9780073519579
- Order by email: bookstore@dakotacollege.edu or call 1-701-228-5458.

Other Course Materials
Required: Texas Instrument 30, 34, or 36 Scientific Calculator
Protractor
Optional: Student Solution Manual- Worked out solutions to the odd numbered problems.

Course Requirements and Work Expectations:
Students are expected to:

- Participate regularly in class
- Submit graded work by dates posted on the course calendar
- Read assigned textbook chapters
- Do ungraded, independent practice exercises
- Submit assigned textbook problems as picture (jpeg) files
- Use manipulatives to complete online math activities
- Complete graded assignments weekly
- Share your reflections on teaching mathematics using national standards
- Report on experiences working with children in elementary school.

Calendar of Topics and Assignments

Class	Text	Topic	Assignment	Due Date
Aug 29	S 1.1	Problem Solving Strategies Project Report Overview	Exercises & Problems 1.1: 4,6,12,16,18,26,30;	Sep 05
Sep 05	S 1.2-1.3	Patterns & Problem Solving Algebra & Problem Solving Project 1 – Step 1	Exercises & Problems 1.3: 2,6,8,10,16,20,24; Project 1 – Step 1	Sep 12
Sep 12	S 3.1	Numeration Systems Project 1 – Step 2	Exercises & Problems 3.1: 8,10,12,14,20,30,32; Project 1 – Step 2	Sep 19
Sep 19	S 3.2	Addition & Subtraction Project 1 – Step 3	Exercises & Problems 3.2: 4,6,10,14,16,20,22; Project 1 – Step 3	Sep 26
Sep 26	S 3.3	Multiplication Project 1 – Step 4	Exercises & Problems 3.3: 6,8,10,12,14,38,40; Project 1 – Step 4	Oct 03
Oct 03	S 3.4	Division & Exponents Project 1 – Step 5	Exercises & Problems 3.4: 2,4,6,10,12,18,20;Project 1 – Step 5	Oct 10
Oct 10	S 4.1	Factors & Multiples Project 1 - Report	Exercises & Problems 4.1: 8,10,14,18,20,30,32 Project 1 - Report	Oct 17
Oct 17	S 4.2	GCF and LCM Project 2 – Step 1	Exercises & Problems 4.2: 2,4,8,10,12,14,16 Project 2 – Step 1	Oct 24
Oct 24	S 5.1	Integers Project 2 – Step 2	Exercises & Problems 5.1: 6,8,10,12,14,18 Project 2 – Step 2	Oct 31
Oct 31	S 5.2	Introduction to Fractions Project 2 – Step 3	Exercises & Problems 5.2: 4,6,8,10,16,18,30 Project 2 – Step 3	Nov 07
Nov 07	S 5.3	Operations with Fractions Project 2 – Step 4	Exercises & Problems 5.3: 6,8,10,12,18,42,46 Project 2 – Step 4	Nov 14
Nov 14	S 6.1	Decimals & Rational Numbers Project 2 – Step 5	Exercises & Problems 6.1: 12,14,16,18,28,32,38	Nov 21

			Project 2 – Step 5	
Nov 21	S 6.2	Operations with Decimals Project 2 - Report	Exercises & Problems 6.2: 4,8,14,16,30 Project 2 - Report	Dec 5
Nov 28	Holiday			
Dec 5	S 6.3	Ratio, Percent, Scientific Notation	Exercises & Problems 6.3: 2,6,8,12,24,26,32	Dec 12
Dec 12	S 6.4	Irrational & Real Numbers	Exercises & Problems 6.4: 2,4,6,8,10,22,26	Dec 16

Evaluation: Your final grade is determined by dividing total points earned by total points possible. Points will be awarded for math activities, selected textbook exercises, online math assignments, reflections, and written reports. No tests will be given.

Grading: Grades will be calculated using the following criteria:

A=90-100%
B=80-89%
C=70-79%
D=60-69%
F= 0-59%

Academic Integrity: The academic community is operated on the basis of honesty, integrity and fair play. It is the expectation that all students, as members of the college community, adhere to the highest levels of academic integrity. This means that:

- Students are responsible for submitting their own work. Student work must not be plagiarized.
- Students must not work together on graded assignments without authorization from the instructor or get help from people, technological resources, textbooks, notes, etc. on examinations.

To learn how to avoid plagiarism in your work, review the website from Purdue University, Is It Plagiarism Yet?

Violations of academic principles such as cheating, plagiarism or other academic improprieties will be handled using the guidelines outlined in the Student Handbook on pages 18, 19, and 37.

Disabilities and Special Needs: If you have a disability for which you need accommodation, contact the Learning Center to request disability support services: phone 701-228-5477 or toll-free 1-888-918-5623.

Relationship to Campus Theme: This course is a core requirement of the Paraeducation Program, a program that requires knowledge of human nature and learning, utilization of computer equipment and other media to create lessons and deliver instruction, and understanding of the role of paraprofessionals in education.