

5. Understand the theoretical underpinnings of instructional practices by
- ◆ becoming aware of the current national and state recommendations regarding the teaching of elementary school mathematics, and planning instruction that follows these recommendations.
 - ◆ developing an understanding of the scope and sequence of the elementary school mathematics curriculum.
 - ◆ being familiar with a wide variety of activities and manipulative materials for use in mathematics instruction.
 - ◆ developing an understanding of differentiated instruction.

Attendance

Attendance and participation are essential in this class, both for you to learn and so that others may benefit from your input. Attendance is expected because most of class time will be spent on group discussions and activities. The ideas and concepts presented cannot easily be transmitted through class notes. You are responsible for all announcements made in class even if you are not there. It is important that you arrive in a promptly (especially when we are at Barrow Elementary School). Absences and tardiness will affect your professionalism grade.

Assignments

I will try to make the purpose of each assignment clear. If you have questions about the purpose of the assignment or what is expected of you, please ask. The requirements for all major assignments are detailed on the following pages. Late assignments will be assessed a penalty of 10% of the grade. You are expected to demonstrate correct use of the English language with regard to grammar, punctuation, and spelling. I do grade on technical writing skills as well as content. Please proofread your work before turning it in to me. If you have weaknesses in the area of grammar, punctuation, or spelling, find someone who will proofread your work for you and/or use the capabilities of your word processor before you turn it in to me. Assignments that are not typed will be returned without a grade. **I would prefer that you send me your assignments as an e-mail attachment. Label each assignment with your last name and the assignment number. For example, to turn in the mathematics autobiography assignment, Shannon Fischer would name the file "Fischer1."**

Course grades will be based on total points earned, and a 90-80-70-60 scale will be used to assign final grades. Your grade for Professionalism will be based on arriving on time and prepared for class and Barrow teaching sessions, class participation (which includes both your contributions and your reactions to the contributions of others), your response to constructive feedback in the classroom and at Barrow, and exhibiting a professional demeanor (dress, language, attitude) toward others (professors, assistants, classroom teachers, peers, children). Written work will be assessed on the quality of your writing as well as your interpretation and understanding of course content using the following rubric:

Grades will be based on the following:

Assignments (see following pages)	100 points
Written final exam	35 points
Manipulative final exam	15 points
<u>Professionalism</u>	<u>5 points</u>
TOTAL	155 points

University policies

All university policies with regard to withdrawals, early final exams, academic honesty, etc. will be strictly followed. It is your responsibility to be familiar with these policies

TENTATIVE Course Schedule

DATE	TOPIC	READ BEFORE CLASS	DUE
Aug. 16	Introduction to mathematics education		
Aug. 21	Prenumber concepts	Battista & Clements Clements	Autobiography
Aug. 23	Prenumber concepts	Shifter & O'Brien	
Aug. 28	Prenumber concepts		
Aug. 30	Counting, Number sense	Paley	Lesson plan critique
Sept. 4	No class		
Sept. 6	Place Value		Paley commentary
Sept. 11	Place Value		
Sept. 13	+ - basic facts		
Sept. 18	Getting ready for Barrow		Place value case
Sept. 20	+ - algorithms	Mewborn & Huberty	
Sept. 25	Barrow		
Sept 27	Mental Math Estimation		Interview write-up
Oct. 2	Barrow		Activity Report
Oct. 4	Parents	Peressini	
Oct. 9	Barrow		Activity Report
Oct. 11	Calculators	Groves & Stacey Higgins	
Oct. 16	Barrow		Activity Report
Oct. 18	X ÷ basic facts		Barrow Buddy case
Oct. 23	Barrow		Activity Report
Oct. 25	X algorithm		Feedback on peer's case
Oct. 30	Barrow		Activity Report
Nov. 1	÷ algorithm		Choice assignment
Nov. 6	Barrow		Activity Report
Nov. 8	Decimals		
Nov. 13	Barrow		Activity Report
Nov. 15	Decimals	Mewborn	
Nov. 20	Fractions		Draft of final portfolio
Nov. 22	No class		
Nov. 27	Fractions	Wantanabe	
Nov. 29	Fractions		
Dec. 4	Manipulative final exam Final portfolio due		
Dec. 6	No class–University operates on a Friday schedule		
Dec. 8	Final Exam 8-11 am		

Assignment Overview

Assignment	Points	Due Date
1. Mathematics autobiography	10	August 21
2. Lesson plan critique	10	August 30
3. Paley article commentary	10	September 11
4. Place value case	10	September 18
5. Student interview	10	September 27
6. Barrow Buddy case	10	October 18
7. Feedback on peers' cases (2)	10 (5 each)	October 25
8. Final portfolio	5 25	November 20 (draft) December 4
9. Activity reports (8)	No grade	Weekly (at Barrow)

1. MATHEMATICS AUTOBIOGRAPHY

Please provide me with a brief mathematics autobiography. The purpose of this assignment is two-fold: 1) to help me get to know you better and 2) to help you assess how you feel about mathematics, why you feel this way, and how these feelings might influence you as a mathematics teacher. Include (but do not limit yourself to) the answers to the following questions.

- ◆ Are you "good" at mathematics?
- ◆ How do you feel about mathematics? Why?
- ◆ Do you feel the same about all areas of mathematics equally? If not, which ones do you like/dislike the most? Why?
- ◆ Who or what influenced your feelings about mathematics?
- ◆ Why do you want to become a teacher?
- ◆ Describe the ideal teacher. This teacher can be a real or imaginary person. Explain why this teacher is ideal.

2. LESSON PLAN CRITIQUE

Find a lesson plan that addresses a prenumber topic such as counting, sorting, patterning, etc. You may get your lesson plan on the internet, from a book, or from a teacher. Bring 5 copies of your lesson plan to class on the designated day. You will discuss your plan with 4 of your peers. Following the class, write a 500-word critique of the lesson you selected.

3. COMMENTARY ON PALEY ARTICLE

Write a commentary on Vivian Paley's article titled "On Listening to What Children Say." You may frame your commentary in any way you choose. For example, you might choose to describe your thoughts about a particular topic prior to reading the article and contrast them with your thoughts after reading the article. You may choose to comment on a particular point made by an author—either agreeing or disagreeing with the author's point. Be sure to explain *why* you agree or disagree. Or, the article may have stimulated you to think about something in a new way or to ponder an idea that you hadn't considered before. The article may have caused you to question either the author's ideas or your own. As long as you fully explain the dilemma you are considering, this is an acceptable format. There are numerous other possibilities as well. The point of the commentary is for you to express *your* thoughts, opinions, emerging ideas, tentative

hypotheses, or quandaries. This assignment is *not* designed to assess your ability to summarize the author's main points. Assume that I have read the article thoroughly and refer to it only as needed to support what you are saying.

4. PLACE VALUE CASE

Prepare a commentary of no more than 500 words explaining what steps you would take if you were the teacher in this case. Be sure to provide reasons for your ideas, referring to the text or other articles as appropriate.

5. STUDENT INTERVIEW

On the first day at Barrow you will interview your student to learn about his/her strengths and areas of potential development in mathematics. The purpose of this assignment is to provide you an opportunity to reflect on what you learn from the interview. Write a summary of the interview you conducted. The review should contain the following information:

General Information

- ◆ Your name
- ◆ The name, age, and grade of the student you interviewed
- ◆ The teacher's name
- ◆ Any pertinent information about the child you would like to mention

Your analysis

- ◆ Include all of the mathematical problems you posed and a brief summary of the child's response. Say more than "The child solved the problem correctly." Explain how the child solved the problem or what the child said to indicate that he/she could not solve the problem. Some children will not be able to explain how they solved a problem. If this happens, simply indicate this in your summary. Note any behaviors you see the child exhibiting such as counting on fingers or moving lips.
- ◆ What did you learn from this experience? Did anything surprise you?
- ◆ What, if any, implications does interviewing have for instruction?

Note: Avoid evaluative statements about the child, such as, "she was really smart" or "he seemed slow." You do not know enough about the child to make such statements, and besides, those statements do not provide any information. Instead, provide details, such as, "When I asked her what $8+9$ was, she solved it by saying '8 and 8 is 16, and one more is 17.' I thought that was neat because I would not have expected a child to do that," or "I asked him this question and he just looked at me. I asked him if I should repeat the question, and he said 'no.' I did not know how else to reach him."

6. CASE ON BARROW BUDDY

Describe a pedagogical dilemma you have encountered while teaching mathematics to your Barrow Buddy, and write it in a format similar to the cases we have read in class. The case should be approximately 2 pages long and should provide readers with enough detail so that they feel that they have personally experienced your dilemma. Use a pseudonym for the child's name. Your case should be "open" (i.e., not resolved). Bring 2 copies of your case to class the day it is due and email me a copy. You will give the paper copies to peers who will read your case and provide feedback.

7. FEEDBACK ON PEER CASES

You will receive 2 cases from peers on which you will provide feedback. For each case, provide a 1-2 page reaction to the case, giving suggestions for ways to resolve any problems or dilemmas in the case. Remember to address the data in the case rather than telling your own story in your feedback. Bring a copy of your feedback to class on the day it is due and give it to your peer. Send me a copy via email.

8. FINAL PORTFOLIO

The purpose of this assignment is to give you a chance to reflect on your growth over the semester and on the growth of your Barrow Buddy. You may be as creative as you wish in designing your portfolio. However, remember that I am much more interested in the *substance* of what you have to say than the format in which you package it. So put most of your effort into the content of the portfolio. Regardless of how you design your portfolio, you should include the following:

- ◆ A description of yourself.
- ◆ A summary of your pedagogical goals for the semester. (What did you want to learn to do?)
- ◆ A discussion of your learning difficulties. (With what did you struggle?)
- ◆ Evidence of your learning. (What did you learn, and how did you learn it?)
- ◆ An update on your Barrow Buddy case. Briefly describe the dilemma you faced, the feedback you got, what you did, and how the situation turned out.
- ◆ A description of your Barrow Buddy. (Use a pseudonym for his/her name and use first names only.)
- ◆ A summary of your content objectives for your Barrow Buddy. (What were you trying to teach him/her?)
- ◆ A discussion of the child's struggles and successes. (These may be social as well as academic.)
- ◆ Evidence of the child's learning. (How do you know that your Barrow Buddy did or did not learn what you were teaching?)

Your portfolio should show evidence of reflection and analysis on the semester. Do not simply create a "scrapbook" in which you tell a chronological story of your semester.

10. ACTIVITY REPORTS

For each session at Barrow you will need to prepare an activity report. Your activity report should consist of a description of the general objective(s) of the lesson, any activities that you used, any problems or successes the child had, and a brief description of what you plan to do in the next session. These activities should be described in enough detail that the classroom teacher can figure out what you did. Put most of your emphasis (both in effort and in writing) on analyzing the child's understanding of the concepts you were addressing. A sample activity report will be distributed to the class. **Your activity reports will be copied and given to the classroom teachers so that they can keep track of what their students are doing.** I will also make comments on your activity reports to provide you with suggestions for future sessions. In order for these comments to be useful to you in planning your next teaching session, I need to be able to read them and give you feedback before your next teaching session. Therefore, activity reports **must** be turned in to me by noon on Thursday following your lesson.

Please remember that you are a beginning teacher education student and that the comments on your activity report should be appropriated to your level of expertise. You are not qualified to label or diagnose a child as "LD," "BD," "dyslexic," "hyperactive," "gifted," etc. Do not use such labels or other judgmental words in your activity report. Please remember that you are seeing this child for a very short period of time, which amounts to only a fraction of the time that child spends in school. You are also seeing the child in a highly specialized context, so the behavior (social or academic) the child exhibits with you may not be typical of his/her behavior during the rest of the school day. If you notice that your child is having some difficulty (or success) during your sessions, please describe the child's actions as carefully as possible **WITHOUT** using labels such as the ones listed above. For example, rather than writing "Joshua appears to be dyslexic," write "Joshua consistently writes his 3s and 7s backwards. He generally writes his other numbers correctly. Sometimes he also makes his Js backward when he writes his name." Your goal is to accurately describe what the child is doing, not to diagnose any learning or behavior problems the child may have. It is appropriate for you to include questions on your activity report such as, "Should I correct Joshua every time he writes a letter or numeral backwards?"

At no time should your activity report make any judgmental comments about the child's classroom teacher. It is not your place to question the teacher's methods, curriculum, assignments, or comments about a child. You will observe very little of the classroom teacher's practices, so you will not be in a position to comment on them.

Place Value Case

My first grade class had been studying place value for two weeks. We had done all sorts of activities with base 10 blocks and other concrete materials. We also talked about place value every day when we did our calendar time. I thought my students had a pretty good handle on place value...until I gave them an assignment the other day.

I thought the worksheet was really simple. The worksheet had two-digit numbers on it, and they were supposed to circle the digit in the 10s place for part of the worksheet and circle the digit in the 1s place for the other part of the worksheet. I thought this would give me a good assessment of how much they understood about place value. When I graded their papers, about half of them seemed to have randomly circled numbers. I couldn't find a consistent pattern to what they were doing wrong; they just weren't getting them right. The other half of my students had mostly correct answers.

Obviously, some of my students weren't connecting what we were doing with the blocks to what I wanted them to do on the worksheet. I know manipulatives are important, but I need for my students to get to the point where they can do things with pencil and paper without manipulatives. I'm beginning to wonder if I should just give up on the manipulatives and focus on the paper and pencil skills my students need. Or maybe there is a better way to help them make the transition from concrete materials to pencil and paper.

Questions to consider:

- How *would* you help students make the transition from manipulatives to pencil and paper work?
- What is the role of manipulatives in instruction? What is the role of paper and pencil work in instruction?