

Math Semester, UNL, Fall 2010 (Section 001)
TEAC 308 TEACHING MATHEMATICS IN THE ELEMENTARY SCHOOL (3 credits)
TEAC 297B PROFESSIONAL PRACTICUM EXPERIENCE (2 credits)
TEAC 351 THE LEARNER CENTERED CLASSROOM (2 credits)
MATH 300 MATHEMATICS MATTERS (3 credits)

Welcome to the Mathematics Semester. The Departments of Mathematics and Teaching, Learning, and Teacher Education have linked Math 300 and TEAC 297b/351/308 to offer you a richly integrated learning experience in the areas of mathematical content and pedagogy as you begin your journey to become an elementary teacher. During the Mathematics Semester, you will be able to connect the math you will study with your preparation to be a teacher. These courses will help you learn to teach children in ways that are mathematically rich while also being responsive to children's ideas. Our goal is to help you become a superb math teacher at the elementary school level—one who has a deep understanding of the math they teach and how to teach that material to their students. Give every assignment your best effort. Be an active participant. Accept the challenge to achieve at a high level but also tell us if you think we are asking too much of you. You are welcome to contact us with questions at any time.

What	Who	Course	When
1. Field Experiences	Charlene Schultz	TEAC 297b	TR
2. Pedagogy	Gail Hayes	TEAC 351	T
3. Pedagogy	Meixia Ding	TEAC 308	MW
4. Mathematics	Susan Cooper	Math 300	MW

Meixia Ding mding2@unl.edu 214A Henzlik Hall 472 2536 OH: 12:30-1:30 MW or by appt.	Susan Cooper scooper4@math.unl.edu 338 Avery Hall 472-7253 OH: 8:30-9:30 MW and 12:30-1:30 MW, or by appt.	Charlene Schultz cschultz4@unlnotes.unl.edu Meadow Lane Brownell Phone 421-2324 (M-R) 225-4041 (F-Su) OH: none	Gail Hayes ghayes2@unlnotes.unl.edu 61E Henzlik OH: by appt.
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Coordinated Schedule of Assignment “Due Dates”

Dates	Monday	Tuesday	Wednesday	Thursday
Aug 23-26			PW1	Auto-Bio
Aug 30-Sept 2			HoM1	
Sept 6-9	<i>no classes</i>		HoM2	
Sept 13-16		IL #1	HoM3	
Sept 20-23	Child Interview		HoM4	
Sept 27-30	Math Lesson #1		PW2	
Oct 4-7	Math Exam 1	IL #2	HoM5	
Oct 11-14			HoM6	
Oct 18-21	<i>Fall Break</i>	<i>Fall Break</i>	HoM7	
Oct 25-28	Learning & Teaching Proj		PW3	<i>no LPS classes Oct 25-29, 297b & 351 meet TBA</i>
Nov 1-4		IL #3	HoM8	
Nov 8-11	Math Lesson #2		HoM9	
Nov 15-18	Curriculum Project		HoM10	
Nov 22-25	Math Exam 2		<i>no classes</i>	<i>no classes</i>
Nov 29-Dec 2	Math Lesson #3	CI Inquiry Proj.	LMT, HoM11	
Dec 6-9		Philosophy St.		
Thursday, December 16		10:00 a.m.-12:00 noon		Math 300 Final Exam
Friday, December 17		10:00 a.m.-12:00 noon		TEAC 308 Final Exam

IL = Inquiry Log PW = Professional Writing HoM = Habits of Mind LMT = Learning Math for Teaching

The Mathematics Semester Fall 2010

Prerequisite: Admission to the Elementary Teacher Education Program and removal of any mathematics entrance deficiencies. TEAC 308/351/297b and Math 300 must be taken in parallel.

Course Purposes

Math 300 focuses on developing a deep understanding of “number and operations” which forms the core of the K-6 mathematics curriculum. At the same time, emphasis is placed on developing an appreciation for the importance of careful reasoning, problem solving and communicating mathematics both orally and in writing. Attention is given to connections with other areas of mathematics and to the need for developing the “habits of mind of a mathematical thinker.”

TEAC 308 is a math methods course that builds on the content of Math 300 and is integrated with the content of TEAC 351. Pedagogical issues for the mathematical topics of number and operations, fractions, geometry, and measurement are featured in TEAC 308. The purpose of TEAC 308 is to help you think hard about the mathematics you will teach from the point of view of a scholar as well as from the vantage point of the child who is learning. You will have the opportunity to explore the teaching of mathematics through investigating how children learn mathematics.

TEAC 297b provide a bridge between your early education experiences and the methods courses and student teaching yet to come. This professional practicum is closely connected to the coursework you will do in TEAC 351, TEAC 308, and Math 300. In particular, TEAC 297b requires you to incorporate what you are learning in the Mathematics Semester about teaching and learning mathematics into math lessons you will teach this semester and what you are learning about classroom management into your experiences in the classroom setting—within and outside of your math lessons.

TEAC 351 is designed to provide you with an understanding of the processes and strategies that support constructivist learning environments. We will do inquiry about management practices that support children in a learning-centered classroom. The main goal is to help you learn how to create a supportive learning environment and how to teach for understanding within it. In particular, we will think about management as it relates to building a collaborative learning environment in a classroom. We hope your confidence increases and your unique style continues to develop as you work with children. They will be your greatest teachers as you learn to work *with* them.

The topics we will cover in TEAC 351 cut across subject areas of the elementary curriculum, but often we will consider topics in the context of mathematics. In the process, we will begin to build connections to the content of TEAC 308. You will learn about relationships between classroom management and the social organization of children as well as connections between classroom management and curricular planning and the teaching of mathematics as well as other subject areas.

We will also focus our attention on how to meet the needs of diverse learners in mathematics and teaching more generally. We will consider the many ways in which learners are diverse and consider what it would mean to create learning environments and opportunities that make it possible for all children to be successful.

Professionalism is expected. You are expected to attend class regularly, actively participate, be open and responsive to feedback, be curious, ask questions, seek opportunities, take initiative, and be responsible. Reading, writing, homework, and discussion preparedness is always expected in terms of the completing assignments prior to a class discussion. Expectations will be defined through interactions with the students in your class, your cooperating teacher, and your instructors. Math 300 homework can be handwritten, but any other writing that you do that is evaluated for a grade must be typewritten.

The Mathematics Semester Fall 2010

Specific Course Information

TEAC 308 and Math 300 will meet from 9:30 – 12:15 on Mondays and Wednesdays in Henzlik 36.

Required Reading for TEAC 308 – Additional Readings May be Assigned

- Reys, R. et. al. (2009). *Helping Children Learn Mathematics* (9th Ed.). John Wiley & Sons.
- Schifter, D., Bastable, V., & Russel, S. J. (2010). *Building a system of tens* (2nd Ed.). Casebook. Dale Seymour.

Readings from *Building a System of Tens* will offer teachers' insights into what it means to help children learn to add and subtract and multiply and divide multi-digit numbers, and apply the operations of addition, subtraction, multiplication, and division to decimal numbers. Because both students and teachers find the study of fractions a challenging mathematical topic, we will build on your understanding of number and operations with integers, to examine the meaning of operations of addition, subtraction, multiplication, and division with fractions. You will be expected to do reading from *Helping Children Learn Mathematics* and respond to questions related to the reading in preparation for class discussion each week. TEAC 308 will also address pedagogical aspects of geometry and measurement, which are also an important part of the elementary mathematics curriculum. We will make links to the content of Math 301, laying the foundation for future study.

Required Text for Math 300

- Beckmann, Sybilla (3rd Ed.). *Mathematics for Elementary Teachers*, Pearson, Addison-Wesley.
- Beckmann, Sybilla (3rd Ed.). *Activities Manual for Mathematics for Elementary Teachers*.

Homework Assignments: A significant amount of class time will be devoted to student presentations of the problems listed below. After a section is discussed in class, you are expected to work the assigned problems and come to class ready to present solutions when asked. We are only assigning problems for the first half of the semester (i.e. until Fall Break). As Fall Break approaches, we will make decisions about pacing and which problems should be assigned for the remainder of the course.

Class	Section	Problems	Class	Section	Problems
A23	1.1	1, 3, 7	O20	5.1	
A25	1.2	2, 4, 7, 8, 9, 12, 13	O25	5.2	
A30	1.3	3, 5, 8, 9, 11		5.3	
	1.4	2, 4, 5, 6	O27	5.4	
S1	2.1	2, 3, 4, 5, 8, 12, 14, 15, 17	N1	6.1	
	2.3	1, 3, 4		6.2	
S8	2.4	1, 5, 6, 8, 13, 14, 17, 21, 24	N3	6.3	
S13	2.5	1, 2, 3, 4, 6, 7, 10, 13, 14, 17	N8	6.4	
	2.6	3, 4, 6, 10		6.5	
S15	3.1	1, 2, 3, 4	N10	6.6	
S20	3.2	1, 3, 4, 5, 6, 7, 8, 12		7.1	
S22	3.3	2, 3, 5, 6, 8, 9, 10, 12, 13	N15	7.2	
S27	3.4	1, 2, 3, 9, 10, 11, 12, 13, 15, 16, 20		7.3	
	3.5	2, 3, 4	N17	7.4	
S29	4.1	1, 2, 5, 7, 8		7.5	
	4.2	1, 2, 4	N22	Exam	
O4	Exam		N29	8.1	
O6	4.3	1, 3, 4, 5, 10, 13, 14, 15, 16, 20		8.2	
O11	4.4	5, 6, 7, 9, 11, 23	D1	8.3	
	4.5	3, 4, 6, 7, 8, 10, 13, 16	D6	8.4 & 8.5	
O13	4.6	1, 3, 4, 7, 9, 10, 12	D8	8.6 & 8.7	

The Mathematics Semester Fall 2010

TEAC 297b meets in a practicum setting on Tuesdays and Thursdays. Meadow Lane and Brownell are in session from 9:15 a.m. to 3:38 p.m. each day. The exact times you are required to be in the practicum setting will be arranged. Practicum seminars will be scheduled on practicum days. Exact times to be announced.

TEAC 351 will meet after school on Tuesdays from 4:00 to 5:50 in the cafeteria at Meadow Lane. On PLC days, sessions will be held at Brownell.

Required Text: Burden, Paul R. (2010) *Classroom Management: Creating a Successful K-12 Learning Community, 4th Edition*

Attendance is mandatory across this block of courses. There are, of course, legitimate reasons for absences that fall into the category of emergencies. If, for any reason, you must miss a day or arrive late, contact the instructor(s) for the courses or practicum that will be missed prior to the class. Doing so is not just a courtesy, it is indicative of a trait that is expected of a professional person. Email us, text us or call our office and leave a message on voice mail. At Meadow Lane and Brownell, call and ask that a message be given to the course instructors and your cooperating teacher. If you will miss 351, you must personally contact Gail, at ghayes2@unl.edu. Two or more unexcused absences for one course will result in a reduction of your grade.

Math Semester Assignments

Professional Writings As a professional educator, there are many issues in mathematics teaching, in particular, and teaching, more generally, about which you need to educate yourselves and develop an informed opinion. We will read about and discuss some central issues in teaching and you will be expected to reflect on the readings and take a stand in the context of three professional writings.

Habits of Mind Problems The purpose of these challenging mathematics problems is to develop the habits of mind of a mathematical thinker. Your best 10 of 11 grades count as your HoM grade. Solutions must be written up neatly with careful attention paid to explaining your reasoning. Group work is permitted. The use of outside resources (people, books, the web, etc.) is considered academic dishonesty.

Learning and Teaching Project You will work a math problem yourself and then work in pairs on a math problem with a child in the practicum setting. You will analyze the experience.

Curriculum Project In groups of 3-4, you will do a study of curriculum materials, evaluating the mathematical content as well as the pedagogical content in light of the NCTM standards.

Learning Math for Teaching (LMT) Near the end of the semester, your understanding of mathematics *for teaching* will be assessed, using an innovative set of problems developed at the University of Michigan. These problems assess what you are learning across this entire block of courses.

Math 300 Exams You will have two 100 point mathematics exams during the semester and a 130 point Final Exam during Final Exam Week. The use of calculators on exams is permitted.

TEAC 308 Notebook You will keep a notebook throughout the semester. You will do daily entries in the notebook for most class meetings based on class activities and reflections. The notebook entries will be collected and checked periodically throughout the semester.

TEAC 308 Midterm Exam This exam will assess your progress in core areas of the course during the first half of the semester. It will include an assessment of your understanding of mathematics *for teaching*; your ability to use that knowledge in teaching; your ability to attend to students' mathematical

The Mathematics Semester Fall 2010

ideas; your knowledge and skills with respect to designing and enacting curriculum; and your ability to reason and to reflect on your own decisions about teaching.

TEAC 308 Final Exam This exam will assess your progress in the core areas of this course across the entire the semester, including your understanding of mathematics *for teaching*; your ability to use that knowledge in teaching; your ability to attend to students' mathematical ideas; your knowledge and skills with respect to designing and enacting curriculum; and your ability to reason and to reflect on your own decisions about teaching.

Math Lessons You will plan, teach, and analyze three different math lessons across the semester. Each lesson will have different elements of teaching in focus. You must teach the lesson at least six days before the due date unless you receive special permission to teach on a later date. Guidelines for planning, teaching, and reflecting on each lesson will be given as needed across the semester.

Child Interview You will do an interview of a child's conceptual understanding of a mathematical topic. You will provide a written analysis of the experience.

Biography, Goal Statement, Journals In the context of TEAC 297b and 351, you will do a variety of written reflections on your past experiences and future learning.

Inquiry Log In your Inquiry Logs, you will make connections between your practical experiences at Meadow Lane and Brownell and the more theoretical nature of ideas you will read and discuss in class. These are a dialogue between you and your TEAC 351 instructor about pedagogical issues related to successfully teaching mathematics, in particular, and teaching, more generally, and not simply a record of events or a summary of readings. Assessment of your Inquiry Log is based on the quality of your ideas and timeliness as well as correct grammar, spelling, and sentence structure. Entries of 2 double spaced pages are required. Inquiry logs are to be turned in or emailed to instructors by the start of class on the due date.

Classroom Inquiry Project You will be observing a student's behavior at a different grade level than the one you are currently assigned to during your practicum assignment. You will analyze and reflect upon the student's behavior that is observed.

Philosophy of Classroom Management As a culmination to the semester, you will be expected to create a statement of your philosophy of classroom management based on your learning this semester, especially drawing on your learning in TEAC 351 and your practicum experiences.

The Mathematics Semester Fall 2010

GRADING/EVALUATION

You will receive a grade for each course in the Mathematics Semester block. Some assignments receive credit in multiple courses. All assignments are due on agreed upon due dates. Points may be deducted for late assignments. Our grading scale(s) and requirements (and point allocations) by course are as follows:

Grade	TEAC	Math	Course	-----TEAC-----			Math
	Percent	Percent		308	297b	351	300
A+	98%	95%	Math Lessons (3)	75	65	50	
A	93%	90%	Habits of Mind Problems (10)				100
A-	90%	87%	Professional Writings (3)	30			30
B+	88%	84%	Math Exams (2)				200
B	83%	80%	Learning & Teaching Project	50			50
B-	80%	77%	Curriculum Project	50			50
C+	78%	74%	Active Participation	50	10	20	50
C	73%	70%	TEAC 308 Midterm Exam	40			
C-	70%	67%	Notebook	60			
D+	68%	64%	Child Interview	25			
D	63%	60%	Inquiry Log (3)				30
D-	60%	57%	Philosophy Statement				30
			Biography	10	5	10	
			Classroom Inquiry Project				30
			Learning Math for Teaching				40
			TEAC 308 Final Exam	80			
			Math Final Exam				130
			Professionalism & Attendance		10	20	
			Seminars		10		
			Other Assignments	TBA		TBA	
			Total	TBA	100	TBA	650

Special Grading Requirements for TEAC 297b Your final grade for TEAC 297b will be a comprehensive indication of your efforts to teach curriculum in ways consistent with what you are learning in courses, to learn from your teaching experiences, to develop and sustain successful working relationships with your cooperating teacher and partner, to seek varied interactions with students across the semester, and to act in a professional manner (e.g., appropriate dress, promptness). Lack of professionalism can affect your practicum grade. You are allowed two absences. The first one is an excused absence and does not need to be made up. The second one (and any subsequent absences) must be made up. Any absences after two will result in a reduction of your practicum grade.

There will be an evaluation of your performance in the practicum approximately halfway into the term and at the end of the semester. This will include a self-evaluation and an evaluation by your cooperating teacher. At the end of the semester, based on your final evaluation and your cooperating teacher's evaluation, we will take a holistic look at your performance in the practicum and equate that with a letter grade. That grade will count as 50% of your final grade. Then we will combine your grade for the final evaluation and your grade for the other 50% and come up with your final grade for TEAC 297b.

Active Participation is expected in all the courses. Each instructor will discuss their expectations and how they will determine your Active Participation grade.