MATH 251: Mathematics for K-8 Teachers – Number & Operations
Fall 2013

Instructor's Name	Office Hours	Course Information
(to be filled in for each section)		
Instructor's Email		

Course Goals

MATH 251 may be different than any course you've had before. It is listed as a math course, and you certainly will study mathematics, but not the kind of mathematics you've studied before. In this course you will learn the mathematics needed to become an effective teacher.

What kind of mathematics do teachers need to know? It is mathematics that helps teachers understand how their students are thinking about mathematics and how they can help their students deepen their understanding. It is mathematics that helps teachers see how the different topics in elementary and middle school mathematics fit together and how they can help their students move from easier topics to more challenging topics. It is mathematics that helps teachers re-examine what they have learned before so they can understand the underlying concepts, and so they can effectively support their students' learning.

This is a new kind of mathematical knowledge. Learning this mathematics requires that you start fresh. It requires that you become genuinely curious about how and why all those rules in mathematics work like they do, about how children think about mathematics, about the methods children are likely to use to solve mathematical problems and why some of these methods are useful for them and some are not, and about what kinds of mathematical understandings are essential for children to acquire.

Because you will be learning a new kind of mathematics, you will notice very soon that you are not doing the usual kinds of things. You will not be shown how to do sample problems and then asked to practice more on your own. Instead, you will…

- View videotapes of students doing mathematics and be asked about what they do and do not understand.

- Work problems posed to students in grades K-8 and predict how students might solve them.

- Solve new kinds of problems designed to provide insight into several mathematical topics and promote your mathematical reasoning skills. In doing so, you will understand familiar problems more deeply.

- Examine patterns and structure; formulate generalizations and conjectures; investigate and test your conjectures using concrete materials and other tools; and construct and evaluate mathematical arguments. You will learn to ask yourself: Is there a pattern? What might happen next? Can I make a generalization or conjecture? Do I think my conjecture is true

for all cases, true for some cases, true for no cases (that is, false for all cases), and why? Under what circumstances is it not true? Can I give an example? Why does it work? How might I convince my group members that my conjecture is correct?

- Read the text to find out more about the mathematical topics – their history, how children think about them, and what teachers need to understand.

- Be asked to explain your reasoning – how you were thinking while you were solving a problem, why you think students will solve problems in a particular way, and why you think some methods for solving problems work better than others. ***Developing good explanations that are convincing to others is one of the best ways to verify that you truly understand.***

This course will be one of the more challenging courses you take as you prepare to become a teacher. This is because most of what you will learn will be new. You won't always be able to rely on what you've learned before. But, if you commit yourself to becoming an effective mathematics teacher and apply yourself, what you learn will be invaluable.

Text and Materials

- **Textbook**: Bassarear, T. (2007). *Mathematics for Elementary School Teachers, 4th Edition*. Boston: Houghton-Mifflin

- **Graph paper**: Please purchase a pad of graph paper for use in class.

- **Manipulatives:** Please purchase a set of Base-10 Blocks and bring these to every class. Also, please purchase approximately 100 coffee stirrers and 10 rubber bands and keep these at your dorm/home for homework assignments.

- **i>clicker**: i>clickers will be used to promote learning in this class. Bring your clicker to every class. For more info about clickers, visit: http://ats.udel.edu/clickers/faq.php

- **Calculator Policy**: A calculator is not required. A successful elementary teacher must be proficient with numbers and completely confident when solving problems mentally and on paper without the use of the calculator. Thus, calculators will not be allowed most of the time. However, it is important for teachers to know when calculators can be useful to develop elementary students' understanding of mathematics. We will discuss appropriate and inappropriate uses of calculators and other technologies in class periodically.

Attendance

Attendance is necessary in order to pass this course. You are expected to attend every class period. Since you will be working with a group during the semester, it is vitally important to be a responsible group member. One facet of this is your class attendance. The following policy is intended to protect all members of this class: ***For every 3 classes that you miss*, your final grade will be dropped by one whole letter grade (e.g., from B+ to C+).***
I will be checking attendance regularly. If you are going to be absent, please notify me by email as soon as possible (preferably before the absence). If you miss a class, it is your responsibility to

arrange to obtain the notes, assignments, and any in-class announcements from a classmate. This is particularly important, as any changes to the syllabus or course schedule will be made during class meetings. I will not re-teach the material you missed during office hours. However, I will be glad to answer any specific questions that you have.
* This does not apply to excused absences that are recognized by the University or to cases where you are representing the University. You must notify me *before* your absence from class. See the Undergraduate Catalog (http://udcatalog.udel.edu/general/undergrad/ugregs.html#best) for descriptions of excused absences and the documentation necessary to verify these absences.

Evaluation

Your course grade is based on the following assessments:

- **Exams:** There will be two midterm exams (each worth 100 points) and one cumulative final exam (worth 135 points) to measure your understanding of the course material. All exams will be taken individually. Except for the final exam, exams are scheduled on Thursday evenings from 5:00 p.m. to 7:00 p.m. See the class schedule for the dates and times. You should reserve this block of time and schedule work and other obligations around these exams. ***No other classes should be scheduled for this time period***.

- **Quizzes:** There will be three quizzes (each worth 15 points) to check your understanding with a few short-response questions. These quizzes will require about 20 to 30 minutes and will be announced prior to the class period in which they occur.

- **Homework:** Two homework assignments (each worth 5 points) will be collected and graded throughout the semester. You will not be given prior notice as to which homework will be collected/graded. So, it is your responsibility to complete every homework assignment with extreme care and diligence.

- **Studying Mathematics Teaching Activities:** Learning how to study teaching and how to study the way students think are skills that are important for you to develop as you move through the program. You will have an opportunity to develop these kinds of skills by participating in various instructional activities and research tasks. You can earn up to 10 points by participating in these activities. Point values for participation in a particular activity are based on the estimated amount of time that the task requires. You may participate in more than one activity until you earn a total of 10 points. If you do not accumulate 10 points by participating in these activities, then you can earn points by completing a written assignment. This assignment typically involves writing essays on mathematics topics and mathematics teaching.

- **Make Ups:** Except for university excused absences, there are no provisions for taking quizzes or exams or handing in assignments at any time other than the scheduled time. ***Personal travel is not considered an excused absence***. Missed exams, quizzes, and assignments will be given the grade of 0.

Grading

The final scale from which your grade is determined may not be identical to this, but your grade will not be worse than the ranges indicated below. Pluses and minuses within each grade range will be given at the discretion of the instructor.

A	90 – 100%	Consistently demonstrates understanding of course content in both familiar and novel situations
B	80 – 89%	Consistently demonstrates understanding of course content in familiar situations and sometimes demonstrates understanding of material in novel situations
C	70 – 79%	Consistently demonstrates understanding of course content in familiar situations
D	60 – 69%	Sometimes demonstrates understanding of course content in familiar situations
F	Below 60%	Rarely demonstrates understanding of course content

Points are assigned as follows:

2 Midterm Exams (100 points each)	200 points
Final Exam (Cumulative)	135 points
Quizzes	45 points
Homework	10 points
Studying Mathematics Teaching Activities	10 points
TOTAL	400 points

Guidelines for Course Grades

A: Pre-service teacher consistently demonstrates competencies that signal that s/he is proficient in the mathematical topics covered in the course. This qualification includes a deeper level of understanding than that expected of the students s/he is preparing to teach. Pre-service teacher demonstrates this level of understanding by consistently going beyond the information explicitly presented by the course instructor to completing new kinds of tasks. This ability to apply one's knowledge to new contexts and to put together various ideas is *essential* for effective classroom teaching because good teachers are able to respond to children's questions, to support and assess children's mathematical proficiency, and to interpret new curricula.

B: Pre-service teacher occasionally demonstrates the competencies and the knowledge transfer abilities that characterize the mathematical proficiency of A-level students, but at times is limited to learning well just the information explicitly presented by the course instructor. Pre-service teacher shows evidence of better-than-acceptable level of mathematical proficiency in the topics studied and a deeper level of understanding than that expected of the students s/he is preparing to teach.

C: Pre-service teacher consistently demonstrates good levels of performance on tasks measuring straightforward learning of course content, but rarely completes knowledge transfer tasks successfully. Shows evidence of an acceptable level of mathematical proficiency of the topics studied and shows evidence, although inconsistent, of a deeper level of understanding than that expected of the students s/he is preparing to teach.

D: Pre-service teacher does not consistently show acceptable levels of performance, even on tasks measuring content explicitly presented by the course instructor. Although the pre-service teacher may have mastered some of the course content, and s/he shows signs of considerable effort, serious questions persist about her/his mathematical proficiency and whether s/he has developed a deeper level of understanding than that expected of the students s/he is preparing to teach.

F: Pre-service teacher shows a profile similar to that of the D student but, in addition, appears to be unprepared to teach others at this time. Pre-service teacher consistently exhibits lack of effort, profound and persistent misconceptions, and/or the failure to master some of the course topics.

Academic Honesty

All matters of academic dishonesty will be handled in accordance with the University of Delaware's policy set forth in the student handbook:

All students must be honest and forthright in their academic studies. To falsify the results of one's research, to steal the words or ideas of another, to cheat on an assignment, or to allow or assist another to commit these acts corrupts the educational process. Students are expected to do their own work and neither give nor receive unauthorized assistance.

Any violation of this standard must be reported to the Office of Judicial Affairs. The faculty member, in consultation with a representative from the Office of Judicial Affairs, will decide whether the matter should be adjudicated through the Student Judicial System or resolved without a formal judicial hearing. In the latter case, the faculty member must have the agreement of all students directly affected.

This statement along with the complete policy can be found at the following website:
http://www.udel.edu/stuguide/05-06/code.html#honesty

Course Design

The design of this course was guided by the University of Delaware's Conceptual Framework (http://www.udel.edu/teachered/policy/concfram.html).

Tentative Course Calendar

Tentative Course Calendar

LESSON NUMBER AND LESSON TOPIC CCSS. Math Practices.MP1-8 are addressed throughout the course.
1 Procedural vs. Conceptual
2 Numeration Systems I
3 Numeration Systems I CCSS.Math.Content. 4.NF.7
4 Numeration Systems II CCSS.Math.Content.4.NF.7 CCSS.Math.Content.5.NBT.1-4
5 Place Value I CCSS.Math.Content.1.NBT.2 CCSS.Math.Content.2.NBT.1, 3
6 Place Value II CCSS.Math.Content.1.NBT.2, 4 CCSS.Math.Content.3.NBT.1
7 Place Value III CCSS.Math.Content.1.NBT.2, 4 CCSS.Math Content.4.NBT.1-3
8 Modeling Addition and Subtraction CCSS.Math.Content.1.OA.1, 3-6
9 The Meaning of Addition and Subtraction I CCSS.Math.Content.1.OA.3-6
10 The Meaning of Addition and Subtraction II CCSS.Math.Content.2.OA.1-2 CCSS.Math.Content.2.NBT.5-7, 9

11 The Meaning of Mutliplication with Whole Numbers CCSS.Math.Content.2.OA.3-4 CCSS.Math.Content.3.OA.1

Midterm 1
Thursday 5-7 p.m.
Date and Room To Be Announced

LESSON NUMBER AND LESSON TOPIC
12 The Distributive Property with Whole Numbers CCSS.Math.Content.3.OA.5
13 The Meaning of Multiplication with Decimal Numbers CCSS.Math.Content.5.NBT.7
14 The Distributive Property with Decimal Numbers CCSS.Math.Content.5.NBT.3
15 Modeling Multiplication CCSS.Math.Content.4.OA.1, 3 CCSS.Math.Content.4.NBT.5
16 Writing Story Problems Involving Multiplication of Decimal Numbers CCSS.Math.Content.5.NBT.6
17 The Meaning of Division CCSS.Math.Content.3.OA.2-3
18 Modeling Division CCSS.Math.Content.3.OA.2-3, 6-7 CCSS.Math.Content.5.NBT.6-7
19 Algorithms for Addition and Subtraction CCSS.Math.Content.3.NBT.2 CCSS.Math.Content.4.NBT.4
20 Algorithms for Addition and Subtraction CCSS.Math.Content.3.NBT.2 CCSS.Math. Content.6.NS.3

Midterm 2
Thursday 5-7 p.m.
Date and Room To Be Announced

LESSON NUMBER AND LESSON TOPIC
21 Subtraction Standard Algorithm CCSS.Math.Content.3.NBT.2 CCSS.Math.Content.6.NS.3
22 Algorithms for Multiplication CCSS.Math.Content.5.NBT.5
23 Algorithms for Multiplication CCSS.Math.Content.6.NS.2-3
24 Algorithms for Multiplication
25 Algorithms for Division CCSS.Math.Content.5.NBT.6
26 Algorithms for Division CCSS.Math.Content.6.NS.2-3
27 Algorithms for Division

Final Exam
Date and Room To Be Announced

MATH 252: Rational Numbers for K-8 Teachers
Fall 2012

Instructor
[redacted]

Course Information
Section 010
TR 8:00 – 9:15 a.m.
Room 205,Willard Hall

Office Hours
TR 9:30 – 10:30 a.m.
or by appointment

Course Goals

Math 252 is similar to Math 251 in many ways. It is listed as a math course, and you certainly will study mathematics, but not the kind of mathematics you've studied before. In this course, as with Math 251, you will learn the mathematics you need to become an effective teacher.

What kind of mathematics do teachers need to know? It is mathematics that helps teachers understand how students are thinking about mathematics and how they can help students deepen their understanding. It is mathematics that helps teachers see how the different topics in elementary and middle school mathematics fit together and how they can help students move from easier topics to more challenging topics. It is mathematics that helps teachers re-examine what they have learned before so they can understand the underlying concepts, and so they can effectively support students' learning.

This is a new kind of mathematical knowledge. Learning this mathematics requires that you start fresh. It requires that you become genuinely curious about how and why all those rules in mathematics work like they do, about how children think about mathematics, about the methods children are likely to use to solve mathematical problems and why some of these methods are useful for them and some are not, and about what kinds of mathematical understandings are essential for children to acquire.

Because you will be learning a new kind of mathematics, you will notice that you are not doing the usual kinds of things. You will not be shown how to do some sample problems and then asked to practice more on your own. Rather, as in Math 251, you will…

- Study and solve problems posed to students in grades K-8 and predict how students might solve them.

- Solve new kinds of problems designed to provide insight into mathematical topics and promote your mathematical reasoning skills. In doing so, you will understand familiar problems more deeply.

- Examine patterns and structure; formulate generalizations and conjectures; investigate and test your conjectures using concrete materials, calculators, and other tools; and construct and evaluate mathematical arguments. You will learn to ask yourself: Is there a pattern? What

might happen next? Can I make a generalization or conjecture? Do I think my conjecture is true for all cases, true for some cases, true for no cases (that is, false for all cases), and why? Under what circumstances is it not true? Can I give an example? Why does it work? How might I convince my group members that my conjecture is correct?

- Read the text to find out more about the mathematical topics – their history, how children think about them, and what teachers need to understand.

- Be asked to explain your reasoning – how you were thinking while you were solving a problem, why you think students will solve problems in a particular way, and why you think some methods for solving problems work better than others. ***Developing good explanations that are convincing to others is one of the best ways to verify that you truly understand.***

This course will be one of the more challenging courses you take as you prepare to become a teacher. This is because most of what you learn will be new. You won't always be able to rely solely on what you've learned before. But, if you commit yourself to becoming an effective mathematics teacher and apply yourself, what you learn will be invaluable.

Text & Materials

- **Textbook**: Bassarear, T. (2012). *Mathematics for Elementary School Teachers, 5th Edition*. Boston: Houghton-Mifflin.

- **Binder**: Please purchase a 3-ring binder (2-inch minimum) for handouts provided in class.

- **Graph paper**: Please purchase a pad of graph paper for use in class.

- **Calculator Policy**: A calculator is not required. A successful elementary teacher must be proficient with numbers and completely confident when solving problems mentally and on paper without the use of the calculator. Thus, calculators will not be allowed most of the time. However, it is important for teachers to know when calculators can be useful to develop elementary students' understanding of mathematics. We will discuss appropriate and inappropriate uses of calculators and other technologies in class periodically.

Attendance

Attendance is necessary in order to pass this course. You are expected to attend every class. Since you will be working with a group during the semester, it is vitally important to be a responsible group member. One facet of this is your class attendance. The following policy is intended to protect all members of this class: ***If you have more than 2 unexcused* absences, then your final course grade will be dropped by one grade.*** Attending the entire class is also important. *Three late arrivals and / or early departures will constitute one unexcused absence*.

* This does not apply to *excused* absences that are recognized by the University or to cases where you are representing the University. You must notify your instructor *before* your absence from class. See the Undergraduate Catalog for descriptions of excused absences and the documentation necessary to verify these absences.

The instructor will take attendance regularly. If you are absent, please notify your instructor by email as soon as possible (preferably before the absence). If you miss a class, it is your responsibility to arrange to obtain the notes, assignments, and in-class announcements from a classmate. This is particularly important, as any changes to the syllabus or course schedule will be made during class meetings. Your instructor will not re-teach the material you missed during office hours. However, the instructor will be glad to answer specific questions that you have.

Evaluation

Your course grade will be based on the following assessments:

- **Exams:** All exams will be taken individually. There will be two mid-term exams, each worth 100 points. The exams are scheduled on Thursday evenings from 5:00 p.m. to 7:00 p.m. See the class schedule for dates and times. You should reserve this block of time and schedule work and other obligations around these exams. ***No other classes or activities should be scheduled during this time period.***

- **Quizzes:** Periodically throughout the semester, your instructor will assess your understanding with a few short-response questions. These quizzes will require about 20–30 minutes and will be announced prior to the class period in which they occur.

- **Final Exam:** The final exam is worth 125 points and will be cumulative. It will be scheduled during finals week and must be taken at the date and time published by the University. The date, time, and location of the final exam will be announced as soon as it becomes available.

- **Studying Mathematics Teaching Activities (SMTA):** An important part of learning to teach well is learning how to study teaching and the way students think. These skills are important for you to develop as you move through the program, and these are the same skills that instructors of this course use to make this the best course possible. You will have an opportunity to develop these skills by participating in various instructional activities and research tasks. For example, you may be asked to read a transcript of a mathematics classroom and assess what students learned. Your participation in these kinds of activities provides an opportunity for you to learn how teachers can study their teaching. In addition, your participation provides information that helps the course instructors understand how you think about mathematics teaching and learning, and this information is then used in the design of this course. You can earn up to 10 points by participating in these activities. Point values for participation in a particular activity are based on the estimated amount of time that the task requires. You may participate in more than one activity until you earn a total of 10 points. If you do not accumulate 10 points by participating in these activities, then you can earn points by completing a written assignment. This assignment typically involves writing essays on mathematics topics and mathematics teaching.

- **Make Ups:** Except for university excused absences, there are no provisions for taking quizzes or exams or handing in assignments at any time other than the scheduled time. ***Commercial travel is not considered a valid excuse***. Missed exams, quizzes, and assignments will be given the grade of 0.

****** There are no opportunities for extra credit in this course. ******

Grading

The final scale from which your grade is determined may not be identical to this, but your grade will not be worse than the ranges indicated below. Pluses and minuses within each of the grade ranges will be given at the discretion of the instructor.

A (90 – 100%): ***Pre-service teacher consistently demonstrates understanding of course content in both familiar and novel situations***. This qualification includes a deeper level of understanding than that expected of the students they are preparing to teach. Pre-service teacher demonstrates this level of understanding by consistently going beyond the information explicitly presented by the course instructor to completing new kinds of tasks. This ability to apply one's knowledge to new contexts and to put together various ideas is *essential* for effective classroom teaching because good teachers are able to respond to children's questions, to support and assess children's mathematical proficiency, and to interpret new curricula.

B (80 – 89%): ***Pre-service teacher consistently demonstrates understanding of course content in familiar situations and sometimes demonstrates understanding of material in novel situations***. In other words, pre-service teacher occasionally demonstrates the competencies and the knowledge transfer abilities that characterize the mathematical proficiency of A-level students, but at times is limited to learning well just the information explicitly presented by the course instructor. Pre-service teacher shows evidence of better-than-acceptable level of mathematical proficiency in the topics studied and a deeper level of understanding than that expected of the students they are preparing to teach.

C (70 – 79%): ***Pre-service teacher consistently demonstrates understanding of course content in familiar situations***. Pre-service teacher consistently demonstrates good levels of performance on tasks measuring straightforward learning of course content, but rarely completes knowledge transfer tasks successfully. Shows evidence of an acceptable level of mathematical proficiency of the topics studied and shows evidence, although inconsistent, of a deeper level of understanding than that expected of the students they are preparing to teach.

D (60 – 69%): ***Pre-service teacher sometimes demonstrates understanding of course content in familiar situations***. Pre-service teacher does not consistently show acceptable levels of performance, even on tasks measuring content explicitly presented by the course instructor. Although the pre-service teacher may have mastered some of the course content, and s/he shows signs of considerable effort, serious questions persist about her/his mathematical proficiency and whether s/he has developed a deeper level of understanding than that expected of the students to whom they are preparing to teach.

F (Below 60%): ***Pre-service teacher rarely demonstrates understanding of course content in familiar situations***. Pre-service teacher shows a profile similar to that of the D student but, in addition, appears to be unprepared to teach others at this time. Pre-service teacher consistently exhibits lack of effort, profound and persistent misconceptions, and/or the failure to master some of the course topics.

Points are assigned as follows:

2 Mid-term Exams (100 pts each)	200 points
Final Exam (cumulative)	125 points
Quizzes	45 points
Studying Mathematics Teaching Activities	10 points
TOTAL	380 points

Academic Honesty

All matters of academic dishonesty will be handled in accordance with the University of Delaware's policy set forth in the student handbook:

All students must be honest and forthright in their academic studies. To falsify the results of one's research, to steal the words or ideas of another, to cheat on an assignment, or to allow or assist another to commit these acts corrupts the educational process. Students are expected to do their own work and neither give nor receive unauthorized assistance.

Any violation of this standard must be reported to the Office of Judicial Affairs. The faculty member, in consultation with a representative from the Office of Judicial Affairs, will decide whether the matter should be adjudicated through the Student Judicial System or resolved without a formal judicial hearing. In the latter case, the faculty member must have the agreement of all students directly affected.

This statement along with the complete policy can be found in the Student Guide to University Policies (http://www.udel.edu/stuguide/11-12/code.html).

The University of Delaware Conceptual Framework provides the goals and outcomes for the candidates in professional education programs. The University prepares educators with the knowledge, skills, and dispositions that are required to fulfill the responsibilities of an uncompromised commitment to serving the needs and interests of students, families, and communities. The candidates in our programs will implement best practices and recognize students and professionals as whole persons who are developing across the cognitive, social, emotional, and physical domains within families, communities, cultural, and economic contexts. Candidates will embody three qualities as they move on their trajectory to become professionals: knowledge and skills, leadership and commitment to equity. The framework describes these qualities and is available online at:
http://www.dcte.udel.edu/wp-content/uploads/2012/01/Conceptual-Framework-2012.pdf.

MATH 252 Tentative Course Calendar Fall 2012

DAY	DATE	TOPIC & Common Core Standards Addressed
		CCSS.Math.Practice.MP.1-8 addressed throughout the course
1-T	August 28	Introduction to Rational Numbers CCSS.Math.Content.1.G.3 CCSS.Math.Content.3.NF.1, 2 CCSS.Math.Content.3.G.2
2-R	August 30	Representing Rational Numbers CCSS.Math.Content.1.G.3 CCSS.Math.Content.2.G.3 CCSS.Math.Content.3.NF.1, 2 CCSS.Math.Content.3.MD.2 CCSS.Math.Content.3.G.2
3-T	September 4	Equivalence CCSS.Math.Content.1.G.3 CCSS.Math.Content.2.G.3 CCSS.Math.Content.3.NF.1-3 CCSS.Math.Content.3.MD.2 CCSS.Math.Content.3.G.2 CCSS.Math.Content.4.NF.1-3, 5
4-R	September 6	Ordering Fractions I CCSS.Math.Content.1.G.3 CCSS.Math.Content.2.G.3 CCSS.Math.Content.3.NF.1-3 CCSS.Math.Content.4.MD.4 CCSS.Math.Content.4.NF.1-3, 5
5-T	September 11	Ordering Fractions II CCSS.Math.Content.1.G.3 CCSS.Math.Content.2.G.3 CCSS.Math.Content.3.NF.1-3 CCSS.Math.Content.4.MD.4 CCSS.Math.Content.4.NF.1-3, 5
6-R	September 13	Addition and Subtraction of Rational Numbers I CCSS.Math.Content.1.OA.1, 4, 8 CCSS.Math.Content.2.OA.1 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.5.NF.1, 2

7-T	September 18	Addition and Subtraction of Rational Numbers II CCSS.Math.Content.1.OA.1, 4, 8 CCSS.Math.Content.2.OA.1 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.5.NF.1, 2
8-R	September 20	Addition and Subtraction of Rational Numbers III CCSS.Math.Content.1.OA.1, 4, 8 CCSS.Math.Content.2.OA.1 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.5.NF.1, 2
9-T	September 25	Multiplication of Rational Numbers I CCSS.Math.Content.2.OA.4 CCSS.Math.Content.4.NF.4 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.5.NF.3-6 CCSS.Math.Content.6.NS.1
10-R	September 27	Multiplication of Rational Numbers II CCSS.Math.Content.4.NF.4 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.5.NF.3-6 CCSS.Math.Content.6.NS.1
11-T	October 2	Multiplication of Rational Numbers III CCSS.Math.Content.4.NF.4 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.5.NF.3-6 CCSS.Math.Content.6.NS.1
12-R	October 4	Percents I CCSS.Math.Content.6.RP.3
13-T	October 9	Capstone Day
14-R	October 11	Percents II CCSS.Math.Content.6.RP.3
MID-TERM EXAM 1: THURSDAY, October 11, 5–7pm (Sharp 130)		

15-T	October 16	Division of Rational Numbers I CCSS.Math.Content.4.NF.4 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.5.NF.3, 4, 7 CCSS.Math.Content.6.NS.1
16-R	October 18	Division of Rational Numbers II CCSS.Math.Content.4.NF.4 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.5.NF.3, 4, 7 CCSS.Math.Content.6.NS.1
17-T	October 23	Division of Rational Numbers III CCSS.Math.Content.4.NF.4 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.5.NF.3, 4, 7 CCSS.Math.Content.6.NS.1
18-R	October 25	Division of Rational Numbers IV CCSS.Math.Content.4.NF.4 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.5.NF.3, 4, 7 CCSS.Math.Content.6.NS.1
19-T	October 30	Division of Rational Numbers V CCSS.Math.Content.4.NF.4 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.5.NF.3, 4, 7 CCSS.Math.Content.6.NS.1
20-R	November 1	Proportional Reasoning I CCSS.Math.Content.6.RP.1-3
	November 6	**Election Day – Classes Will Not Meet**
21-R	November 8	Proportional Reasoning II CCSS.Math.Content.6.RP.1-3
22-T	November 13	Capstone Day
23-R	November 15	Proportional Reasoning III CCSS.Math.Content.6.RP.1-3

MID-TERM EXAM 2: THURSDAY, November 15, 5–7pm (Sharp 130)		
24-T	November 20	Proportional Reasoning IV CCSS.Math.Content.6.RP.1-3
	November 22	**Thanksgiving Holiday – Class Will Not Meet**
25-T	November 27	Studying Mathematics Teaching Lesson 1
26-R	November 29	Studying Mathematics Teaching Lesson 2
27-T	December 4	Capstone Day
FINAL EXAM: Date and time to be announced by the University		

MATH 253 – Mathematics for K-8 Teachers: Geometry, Algebra and Measurement

Spring 2013 Syllabus

Instructor	**Course Information**	**Office Hours**
[redacted]	Section 010 MW 8:40 - 9:55AM	M 10:00 - 11:00AM W 10:00 - 11:00AM or by appointment

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Conceptual Framework

The University of Delaware Conceptual Framework provides the goals and outcomes for the candidates in professional education programs. The University prepares educators with the knowledge, skills, and dispositions that are required to fulfill the responsibilities of an uncompromised commitment to serving the needs and interests of students, families, and communities. The candidates in our programs will implement best practices and recognize students and professionals as whole persons who are developing across the cognitive, social, emotional, and physical domains within families, communities, cultural, and economic contexts. Candidates will embody three qualities as they move on their trajectory to become professionals: knowledge and skills, leadership and commitment to equity. The framework describes these qualities and is available online at:

http://www.dcte.udel.edu/wp-content/uploads/2012/01/Conceptual-Framework-2012.pdf.

Course Goal

The goal of the course is to provide students with the opportunity to develop a deep understanding of geometry, algebra and measurement topics and to learn how these topics are developed throughout the K-8 curriculum. This goal targets the first three outcome of the University of Delaware Conceptual Framework.

Materials

Text

"Mathematics for Elementary School Teachers" (5th edition), by Tom Bassarear. This is the same textbook you have used in MATH 251 and MATH 252.

Class Handouts

Handouts will be provided for you.

Homework Assignments

Homework assignments will be provided for you.

Calculators

The use of calculators is encouraged in class, on homework, and on assessments.

However, you may not use your cell phone as your calculator.

Computers

Regular access to a computer is essential. The instructor of the course will utilize email and Sakai to send and post items relevant to the course, such as handouts, homework assignments, and videos for homework assignments.

Grades

Your grade will be calculated out of 500 points (see chart below). For descriptions of each grade component, see the Assignments page.

	Number	Points each	Total points
Assignments	Varies	Varies	40
Projects	1	25	25
Quizzes	3	25	75
Mid-term Exams	2	100	200
Final Exam	1	150	150
Studying Mathematics Teaching Activities			10
Attendance, Promptness and Participation			See below
		Total	500

Letter grades will be assigned according to the scale below. Pluses and minuses will be given at the discretion of the instructor (e.g., the 80-89% range includes B+, B, and B- and the instructor will decide which percentages within that range are assigned a B+). There are no set percentages that guarantee you a specific +/- grade (e.g., an 88% is not necessarily a B+). There are no opportunities for extra credit in this course. On all assessments, you will be expected to apply the knowledge that you learned in class in novel ways.

Letter Grade	Final Grade Percent	Description of Student Performance
A	90 – 100%	Student consistently demonstrates understanding of course content in both familiar and novel situations.
B	80 – 89%	Student consistently demonstrates understanding of course content in familiar situations and sometimes demonstrates understanding of material in novel situations.
C	70 – 79%	Student consistently demonstrates understanding of course content in familiar situations.
D	60 – 69%	Student sometimes demonstrates understanding of course content in familiar situations.
F	Below 60%	Student rarely demonstrates understanding of course content.

Attendance, Promptness and Participation

Regular attendance and prompt arrival to class is required for this course. For every unexcused absence after the third unexcused absence, and for every late arrival after the fourth late arrival, 20 points (4% of the total points) will be deducted from your point total. See the *Undergraduate and Graduate Catalog* (http://academiccatalog.udel.edu/) for descriptions of excused absences and the documentation necessary to verify these absences. Active participation in all aspects of this course, including small group work and whole class discussion, is also required.

Academic Honesty

All matters of academic dishonesty will be handled in accordance with the University of Delaware's policy set forth in the student handbook:

All students must be honest and forthright in their academic studies. To falsify the results of one's research, to steal the words or ideas of another, to cheat on an assignment, or to allow or assist another to commit these acts corrupts the educational process. Students are expected to do their own work and neither give nor receive unauthorized assistance.

Any violation of this standard must be reported to the Office of Judicial Affairs. The faculty member, in consultation with a representative from the Office of Judicial Affairs, will decide whether the matter should be adjudicated through the Student Judicial System or resolved without a formal judicial hearing. In the latter case, the faculty member must have the agreement of all students directly affected.

This statement along with the complete policy can be found in the Student Guide to University Policies (http://www.udel.edu/stuguide/11-12/code.html)

Other Policies

Students with a documented disability (see Academic Services Center) will be accommodated.

MATH 253 Tentative Course Outline Spring 2013

Date	Week Number	Class Number	Topic & Common Core Standards Addressed
			CCSS.Math.Practice.MP.1-8 addressed throughout the course
2/4	1	1	Generalized numbers I CCSS.Math.Content.3.OA.5 CCSS.Math.Content.6.SP.3 CCSS.Math.Content.6.EE.6
2/6		2	Generalized numbers II CCSS.Math.Content.1.OA.2 CCSS.Math.Content.3.OA.5 CCSS.Math.Content.6.SP.3
2/11	2	3	Generalized operations I CCSS.Math.Content.1.OA.1, 8 CCSS.Math.Content.2.OA.1 CCSS.Math.Content.2.MD.5 CCSS.Math.Content.6.EE.6
2/13		4	Generalized operations II CCSS.Math.Content.2.OA.4 CCSS.Math.Content.3.OA.4 CCSS.Math.Content.6.EE.6
2/18	3	5	Generalized operations III CCSS.Math.Content.3.OA.4, 7 CCSS.Math.Content.6.EE.6
2/20		6	Generalized story problems I & Quiz 1 (Lessons 1-5) CCSS.Math.Content.3.OA.8 CCSS.Math.Content.4.OA.3 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.6.EE.6, 7
2/25	4	7	Generalized story problems II CCSS.Math.Content.3.OA.8 CCSS.Math.Content.4.OA.3 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.6.NS.1

			CCSS.Math.Content.6.EE.6, 7
2/27		8	Generalized story problems III CCSS.Math.Content.3.OA.8 CCSS.Math.Content.4.OA.3 CCSS.Math.Content.4.MD.2 CCSS.Math.Content.6.NS.1 CCSS.Math.Content.6.EE.6, 7
3/4	5	9	Simple expressions as functions I CCSS.Math.Content.4.OA.5
3/6		10	Capstone day
3/7	**Midterm Exam #1 Thursday March 7th, 5-7 PM (Lessons 1-8)**		
3/11	6	11	Simple expressions as functions II CCSS.Math.Content.4.OA.5 CCSS.Math.Content.5.OA.3 CCSS.Math.Content.6.EE.2, 9
3/13		12	Compound exp. as functions I CCSS.Math.Content.5.OA.3 CCSS.Math.Content.6.EE.2, 9
3/18	7	13	Compound exp. as functions II CCSS.Math.Content.5.OA.3 CCSS.Math.Content.6.EE.2, 9
3/20		14	Equal signs/equiv. relations I & Quiz 2 (Lessons 9-13) CCSS.Math.Content.1.OA.7
3/25	Spring Break		
3/27			
4/1	8	15	Equal signs/equivalence relations II CCSS.Math.Content.1.OA.7
4/3		16	Equivalent Expressions I CCSS.Math.Content.1.OA.2, 8 CCSS.Math.Content.2.OA.1 CCSS.Math.Content.2.MD.5 CCSS.Math.Content.6.EE.4, 5, 7
4/8	9	17	Equivalent Expressions II

			CCSS.Math.Content.1.OA.2, 8 CCSS.Math.Content.2.OA.1 CCSS.Math.Content.2.MD.5 CCSS.Math.Content.6.EE.4, 5, 7
4/10		18	Equivalent Expressions III CCSS.Math.Content.1.OA.2, 8 CCSS.Math.Content.2.OA.1 CCSS.Math.Content.2.MD.5 CCSS.Math.Content.6.EE.4, 5, 7
4/15	10	19	Equivalent Expressions IV CCSS.Math.Content.1.OA.2, 8 CCSS.Math.Content.2.OA.1 CCSS.Math.Content.2.MD.5 CCSS.Math.Content.6.EE.4, 5, 7
4/17		20	Capstone Day
4/18	**Midterm Exam #2: Thursday, April 18th, 5-7 PM (Lessons 9-18)**		
4/22	11	21	Measurement Concepts CCSS.Math.Content.1.MD.1, 2
4/24		22	Standard Units CCSS.Math.Content.2.MD.1-4, 9 CCSS.Math.Content.3.MD.2 CCSS.Math.Content.4.MD.1 CCSS.Math.Content.5.MD.1
4/29	12	23	Estimation CCSS.Math.Content.2.MD.9
5/1		24	Area Formulas CCSS.Math.Content.1.G.1 CCSS.Math.Content.2.OA.4 CCSS.Math.Content.2.G.2 CCSS.Math.Content.3.MD.5-7 CCSS.Math.Content.4.MD.3 CCSS.Math.Content.6.G.1
5/6	13	25	Area and Perimeter CCSS.Math.Content.2.G.2 CCSS.Math.Content.3.MD.5-8

			CCSS.Math.Content.4.MD.3 CCSS.Math.Content.6.G.1
5/8		26	Volume and surface area I & Quiz 3 (Lessons 19-24) CCSS.Math.Content.3.MD.2 CCSS.Math.Content.5.MD.3-5 CCSS.Math.Content.6.G.2
5/13	14	27	Volume and surface area II CCSS.Math.Content.3.MD.2 CCSS.Math.Content.5.MD.3-5 CCSS.Math.Content.6.G.2
Final Exam			

UNIVERSITY OF DELAWARE
School of Education

EDUC 335: Elementary Curriculum: Mathematics
Elementary Mathematics Methods
Fall 2013 Syllabus

Instructor: [redacted]
Course Location: Willard Hall Room 323, https://sakai.udel.edu/
Course Time: MW 9:05 – 10:20
Office Hours: By appointment (office is in Willard Hall Room 105D)
Contact Info: [redacted]
Course Website: Available on Sakai

COURSE DESCRIPTION

The purpose of this course is to examine instructional methods, students' reasoning about mathematics, and other issues related to the teaching and learning of mathematics in order to promote the skills, habits, and knowledge of effective mathematics teaching in elementary and middle school. The course is also designed to provide you an opportunity to reflect about teaching, learning, and your expectations for students. The course consists of the following two major components:

Coursework

Throughout the course we will develop understandings about learning theories, national mathematics standards, and mathematical proficiency. Activities and assignments will be centered around the mathematical content areas typically taught in elementary and middle schools: number & operations, measurement, geometry, algebra, and data analysis & probability.

Field Experience

The field experience provides an opportunity to try out many of the ideas we discuss in the university classroom in a real school setting. During the first week in the field, each student will observe their cooperating teacher teaching mathematics lessons and determine if and when they use any of the important features for teaching for understanding that are discussed in the course. During the second week in the field, each partner group will jointly teach one lesson to the entire class. The lesson that you will teach during the second week will be discussed at length in class. During the third week in the field, each student will teach one lesson to their entire field placement class using a topic chosen by their cooperating teacher.

COURSE MATERIALS

We have two required texts for this course:

- Van de Walle, J. (2012). *Elementary and Middle School Mathematics: Teaching Developmentally,* 8th edition. Boston, MA: Pearson Education, Inc. This is an excellent resource to keep on your shelf while beginning teaching mathematics. This is a great source of tasks you could use with students for every mathematics content area. It also will support you in planning lessons for diverse students.

- Lemov, D. (2010). *Teach Like a Champion: 49 Techniques that Put Students on the Path to College*. San Francisco, CA: Jossey-Bass, Inc. This book is available in paperback and provides many specific techniques that have been effective for teachers.

All other course readings will be available online or on our course website: https://sakai.udel.edu/

COURSE GOALS

- Develop a community of teachers that value discussions about teaching.
- Develop reflective practitioners that focus on their students' thinking and learning.
- Develop pre-service teachers' competence in designing learning opportunities for children based on knowledge of children's mathematical thinking
- Encourage pre-service teachers to utilize teaching methods that research supports as being effective in the math classroom.
- Develop the belief that all children have important mathematical ideas, and all children can learn mathematics.

CONCEPTUAL FRAMEWORK

The Conceptual Framework for all professional education programs at the University of Delaware is located at http://www.udel.edu/dcte/ucte/Policies/conceptual.html. UD prepared educators function as:

- ***Scholars***, grounded in the knowledge of their disciplines, in pedagogical content knowledge, in knowledge of best practices informed by state and national standards, and in theory and research concerning individuals, families, and communities.
- ***Problem solvers***, constructing practical, effective approaches to professional challenges using a sound base of theory and research, and who help others construct their own ways of addressing challenges.
- ***Partners***, with an ability to use a flexible array of well-developed skills to support the positive development of all learners, giving balanced attention to the emotional, social, physical and cognitive dimensions of students' lives.

EXPECTATIONS

- For us to have a strong intellectual community, we need everyone to **complete readings** before class and be ready to engage in class activities thoughtfully. "Completing readings" means to read articles/textbook carefully and thoroughly at least once, digging deeply into authors' arguments and outlining your thoughts and questions prior to class.

- **Active participation is vital to this class.** Participation means more than attending the class. Participation means contributing to the discussion and making meaningful comments, both in small group and whole group situations. Participation means asking questions, actively encouraging other class members to contribute, and making sure not to monopolize discussions.

- **Respect.** We will be engaging with familiar and new ideas about learning and teaching mathematics. Please be mindful of your participation in class discussions and think about how your comments connect to the flow of the conversation. You have the right to learn in a respectful environment. Be considerate of others. Do not talk while others are talking. Behave in an ethical manner.

- I **welcome and encourage you to talk to me** about our discussions, assignments, readings, and your observations in the field.

COURSE POLICIES

Professionalism

This course is part of UD's Teacher Preparation Program, and thus reflects standards and expectations for professional behavior. In the schools, both we and the school staff expect you to dress, act, and talk in professional ways. We also expect you to be respectful of children and school staff and mindful of the need for learning and teaching to go on without unnecessary interruption. The confidentiality of the children and their families should be maintained at all times.

Field Experience Component: The field experience plays a vital role in this course. You must complete all of the field experiences from this class in order to pass the course. If you stop attending your field placement, including official removal from the field experience, you will receive zero points for any field experience assignments that are due after the date you stopped attending. In addition, failure to complete the field experience (as described in your field experience orientations) could result in a lowering of your grade in this class. Your grade may be lowered enough to result in failing the course.

Except for rare cases of serious illness or family emergencies, teachers show up at school every day, on time, fully prepared, with a strong sense of personal responsibility. When they cannot meet their responsibilities due to unusual and extenuating circumstances, they communicate with their colleagues and principal as soon as possible. If you are sick or have an emergency that requires you to miss or be late for a field experience, you

should call the classroom teacher as far in advance as possible, since teachers often plan around you on the days that you are there and may need to revise a plan. Also, let your university supervisor and me know that you will be absent in advance and arrange to make up the missed work. All missed field time must be made up.

Attendance & Promptness

Dependability and punctuality are critical qualities in the profession of teaching and your regular class attendance and promptness are important to your participation in this class.

Attendance is mandatory. Arriving to class on time and prepared is also very important. Roll will be taken at the beginning of class. For **every** unexcused absence after the second unexcused absence, and for **every** late arrival after the second late arrival, 5% of the total possible points will be deducted from the student's point total. If you are late, it is your responsibility to notify the instructor (after class) of your presence.

I understand that emergencies come up and that you may have to miss a class. In order for an absence to be excused, (a) you must notify me before class, and (b) the reason for the absence must be excused according to University of Delaware policy http://www.udel.edu/provost/fachb/III-1-l-attendance.html.

It is the policy of the University of Delaware not to cancel classes on religious holidays. However, students and faculty are encouraged to exercise their own judgment pertaining to their attendance on these days. …Absences on religious holidays not listed in University calendars, as well as absences due to athletic participation or other extracurricular activities in which students are official representatives of the University, ***shall be recognized as excused absences when the student informs the instructor in writing during the first two weeks of the semester of these planned absences*** *for the semester.*

In the event of an absence, you should arrange for another student to gather handouts and take notes for you. You are responsible for catching up on any missed material, and you may be assigned extra work to make up the missed class. Absence is not an excuse to miss assignment deadlines.

Late Assignments

Conflicts with an assignment deadline should be discussed and resolved *before* the assignment's due date. All assignments are due at the date and time indicated on the syllabus. Late assignments are only accepted if you have contacted me in advance of the due date, and I agree to accept the late paper. It is to your advantage, however, to turn everything in on time as we have a tight schedule, especially in the first half of the semester. If you are absent on the day an assignment is due and do not make other arrangements to get the assignment to me, it will be considered late. You can submit assignments via SAKAI (www.udel.edu/sakai). Late assignments might be evaluated at a higher standard because of the additional time available to work on it.

Assignment Submission

Please save all assignments such that the name of the file begins with your last name, followed by an underscore, followed by the assignment name. For example, if I were turning in the observation task written reflection, I would save it as:

Sisofo_ObservationTask.doc

Assignments not saved in this way when submitted will be returned to the student. This may result in a delay in the time it takes for you to receive feedback which, in turn, could hinder your course progress.

Communication

I will use the udel.edu email system to communicate with students. Please make sure you forward your udel.edu email address to the account you check regularly. Please check your email 24 hours prior to attending each class. During class time, please turn cell phones off or to silent mode. Laptops may be used to take notes, but if they are distracting you from participation, you will be asked to put them away. Please do not use Facebook, Twitter, Angry Birds, Plants vs. Zombies, etc. during class. Research suggests that people are generally not competent at multi-tasking, so please keep your primary focus on the course.

Academic Honesty

Academic dishonesty will not be tolerated under any circumstances, and will result in failure to pass this course. All matters of academic dishonesty will be handled in accordance with the University of Delaware's policy set forth in the student handbook. This policy can be found at the following websites:
http://www.udel.edu/stuguide/10-11/code.html#honesty and
http://www.udel.edu/provost/fachb/III-1-d-dishonesty.html

Disability Services

I wish to fully include all students in this course. Please let me know if you need any special accommodations in the curriculum, instruction, or assessments of this course to allow you to fully participate. I will maintain complete confidentiality of any information you share with me. If you determine that formal, disability-related accommodations are necessary, it is very important that you contact the Office of the ADA (Americans with Disabilities Act), www.udel.edu/ADA or 831-4643.

COURSE ASSIGNMENTS

The assignments for this course are meant to provide learning experiences for you that align with the course goals. The following are brief descriptions of these assignments to give you some idea of what they will entail. More detailed guidelines for each project will be available on Sakai.

1. Studying Mathematics Teaching Activities (SMTA)

An important part of learning to teach well is learning how to study teaching and the way students think. These skills are important for you to develop as you move through the program, and these are the same skills that instructors of this course use to make this the best course possible. You will have an opportunity to develop these skills by participating in various instructional activities and research tasks. You can earn up to 10 points by participating in these activities. Point values for participation in a particular activity are based on the estimated amount of time that the task requires. You may participate in more than one activity until you earn a total of 10 points. If you do not accumulate 10 points by participating in these activities, then you can earn points by completing a written assignment. This assignment typically involves writing essays on mathematics topics and mathematics teaching.

2. Field Experience Observation Task

This project must be completed **during your first field experience week.** In this task, you will be observing your cooperating teacher and determining how she uses multiple entry points, a high level of cognitive demand, or a meaningful context within one of her mathematics lessons. If she does not use any of these, then you will explain a specific way in which she could have used one of these important features within one of her mathematics lessons. You are expected to complete the observation and **write a reflection paper** for this activity. The written reflection paper is worth 20 points.

3. Field Experience Drop-in Lesson

During the second field experience week, you will be required to teach a drop-in lesson on a particular mathematical topic. The lesson plan will cover one day of instruction in your field experience classroom**.** You will teach half of the lesson and your field experience partner will teach the other half of the lesson. The lesson you will teach is from the *Investigations* curriculum. However, before you teach the lesson in the field, you along with your classmates will be expected to input this lesson into our lesson plan template. Each lesson plan is connected to a chapter from the Van de Walle text. The Van de Walle text can help you and your classmates determine how to improve the lesson.

The lesson plan will be worth 10 points (each group member will receive the same grade for this). A peer evaluation will be used where members of your group will evaluate your contributions to writing the lesson plan. If more than half of the group state that you did not do your fair share of the work for the lesson plan, then your grade for the lesson plan (10 points) will be adjusted.

After teaching the lesson, you will be required to write a written reflection paper on your teaching and students' thinking. The written reflection paper will be worth 20 points. This project is worth a total of 30 points. More detailed information about this assignment will be given to you during the semester.

4. Field Experience Curriculum-Based Lesson

The purpose of this activity is for you to apply what you have learned throughout the semester to plan and teach a problem solving based mathematics lesson for a topic that flows with the normal sequence of your cooperating teacher's curriculum **during the third field experience week**. Depending on the curriculum that your cooperating teacher uses you may have to modify the activities that the curriculum suggests to help students reach learning goals according to the practices that were discussed in class. The lesson plan that you write will be worth 20 points. After teaching the lesson, you will be required to individually write a written reflection paper on your teaching and students' thinking. For this project, the lesson plan and written reflection will be individually written. The written reflection paper will be worth 20 points. This project is worth a total of 40 points. More detailed information about this assignment will be given to you during the semester.

EVALUATION & GRADING

A list of each assignment with how many points (and what percentage of your total grade) they are worth is provided below:

Assignment	Points
❖ SMTA Points	10 points
❖ Field Experience Observation Task	20 points
❖ Field Experience Drop-in Lesson & Reflection	30 points
❖ Field Experience Curriculum-Based Lesson & Reflection	40 points
	Total: 100 points

Letter grades will be assigned based on the total number of points that you earn:

90-100	= A
80-89	= B
70-79	= C
60-69	= D
< 60	= F

Note: Pluses and minuses will be given to borderline grades at the instructor's discretion.

Grades are based on the following:

***"A" indicates excellence*:**
The work has been of excellent quality and contained no technical errors. Writing consistently showed evidence of understanding, synthesis, and reflection upon course material. Projects addressed multiple ideas from the course, demonstrated insight on the part of the individual (such as making new connections among course ideas) and included a high level of detail. Student participated regularly and thoughtfully in small group and whole class discussions.

"B" indicates good work:
The work has been of good quality but not exceptional and contains only minor technical errors. Writing consistently showed evidence of understanding the course material, but did not often show evidence of synthesis. Projects noted the big ideas, yet did not make new connections among the ideas from the course or provide sufficient detail. Student participated periodically in small group and whole class discussions.

***"C" indicates competency, yet reflects poor performance*:**
The work has been of acceptable quality but contains numerous or serious technical errors. Writing consistently showed incomplete or inconsistent understanding of course material. Projects missed some of the important ideas or suggested misunderstanding of ideas in the course. Student does not participate in small group or whole class discussions.

"D" indicates insufficient competency and poor performance:
The work has been of insufficient quality and contains numerous or serious technical errors. Writing consistently showed incomplete or inconsistent understanding of course material. Projects missed some of the important ideas or suggested misunderstanding of ideas in the course. Student does not participate in small group or whole class discussions.

"F" indicates insufficient competency and very poor performance:
The work has been of unacceptable quality and contains numerous or serious technical errors. Writing consistently showed incomplete or inconsistent understanding of course material. Projects missed many of the important ideas or suggested big misunderstandings of ideas in the course. Student does not participate at all in small group or whole class discussions.

STUDENT RESOURCES

- ***Student Counseling Services:*** http://www.udel.edu/Counseling
- ***Education Resource Center*** (located in Willard Hall): www.erc.udel.edu
- ***Writing Center:*** http://www.english.udel.edu/wc
- ***Student Health Services:*** http://www.udel.edu/shs/whatis.html
- ***Office of Academic Enrichment:*** http://ae.udel.edu/

IMPORTANT WEB SITES

- Common Core State Standards Initiative http://www.corestandards.org/
- National Council of Teachers of Mathematics (NCTM) http://www.nctm.org/standards (120 day free trial available)
- Thinkfinity along with NCTM Illuminations Mathematics Teaching Resource. Includes lesson plan ideas, activities, and a search tool that makes it easy for teachers to find resources fast. http://www.thinkfinity.org/math-highlights
- Showme.com has lots of teacher-led videos for many subject areas. Many teachers allow their students to watch these videos to help them learn ideas. It is also a good resource for beginning teachers to get some ideas on how to teach different topics. http://www.showme.com

IMPORTANT DUE DATES

1. **Observation Task Written Reflection – due Friday October 4th.**
2. **Final Draft of Drop-in Lesson Plan – due Friday October 11th.**
3. **Drop-in Lesson Written Reflection – due Friday November 1st.**
4. **Final Draft of Curriculum-Based Lesson Plan – due Friday November 22nd.**
5. **Curriculum-Based Lesson Written Reflection – due Friday December 6th.**

TENTATIVE COURSE CALENDAR			
Date	**Topic**	**Reading Due**	**Assignment Due & Common Core Standards Addressed**
8/28	**Course Introduction** • How were you taught math and how did you learn math? • Learning Theories • What could math classrooms look like? • Overview of Syllabus & Course Goals • Distribution of *Investigations* drop-in lessons	**Required readings for 8/28:** • Course syllabus (available on Sakai) • Van de Walle (pp. 1, 13 – 23)	**No required assignment for 8/28.** **CCSS.Math.Practice.MP1** **CCSS.Math.Practice.MP7** **CCSS.Math.Practice.MP8** **CCSS.Math.Content.5.OA.A.2**
9/4	**Procedural vs. Conceptual** • Different Mathematics Classrooms ○ Procedural vs. Conceptual • Will you ever use procedural methods of teaching in mathematics class? • Mathematical Proficiency	**Required readings for 9/4:** • Van de Walle (pp. 23 – 29)	**Required assignment for 9/4:** • **Begin Drop-in Lesson Project with group members (description on Sakai)** **CCSS.Math.Practice.MP1** **CCSS.Math.Practice.MP3**
9/9	**Learning Goals** • K – 8 national Common Core State Standards • Writing learning goals – what makes a good learning goal?	**Required readings for 9/9:** • Van de Walle (pp. 59 – 63) • Go to www.corestandards.org, click on the **Mathematics Standards** button, and read the *Standards for Mathematical Practice*. Then, peruse the Common Core State Standards for math content by grade level.	**Required assignment for 9/9:** • **Continue Drop-in Lesson Project with group members (description on Sakai)** **CCSS.Math.Practice.MP1** **CCSS.Math.Practice.MP4** **CCSS.Math.Practice.MP5** **CCSS.Math.Practice.MP7** **CCSS.Math.Practice.MP8** **CCSS.Math.Content.4.NBT.B.5**

TENTATIVE COURSE CALENDAR			
Date	**Topic**	**Reading Due**	**Assignment Due & Common Core Standards Addressed**
9/11	**A Different Way to Teach Math** • Launch-Explore-Summarize structure of conceptual method of teaching • Introduction to lesson plan template	**Required readings for 9/11:** • Van de Walle (pp. 49 – 56)	**Required assignment for 9/11:** • **Continue Drop-in Lesson Project with group members (description on Sakai)** **CCSS.Math.Practice.MP1** **CCSS.Math.Practice.MP7** **CCSS.Math.Practice.MP8** **CCSS.Math.Content.3.OA.D.9**
9/16	**Teaching Through Problem Solving** • What are the principles of procedural methods of teaching vs. principles of conceptual methods of teaching? • What makes a good task if you are teaching for understanding? • Cognitive Demand Task Sort Activity	**Required readings for 9/16:** • Van de Walle (pp. 32 – 48)	**Required assignment for 9/16:** • **Continue Drop-in Lesson Project with group members (description on Sakai)** **CCSS.Math.Practice.MP1** **CCSS.Math.Practice.MP2** **CCSS.Math.Practice.MP3**
9/18	**Observation Task** Questions about Observation Task **1st Grade Drop-in Lesson** • Group assigned to the 1st grade *Investigations* lesson will teach their lesson plan. Class will discuss launch, explore, and discussion portion of this math lesson.	**Required readings for 9/18:** • Read Observation Task Description (available on Sakai) • Van de Walle (pp. 402 – 411)	**Required assignment for 9/18:** • **Final Draft of 1st grade Drop-in Lesson due Friday, 10/11 by 5:00pm on Sakai (description on Sakai)** **CCSS.Math.Practice.MP3** **CCSS.Math.Practice.MP7** **CCSS.Math.Practice.MP8** **CCSS.Math.Content.1.G.A.1**
Sep. 23 – Sep. 27	**Field Experience Week One** *Observation Task*		

TENTATIVE COURSE CALENDAR			
Date	**Topic**	**Reading Due**	**Assignment Due & Common Core Standards Addressed**
9/30	**2nd Grade Drop-in Lesson** • Group assigned to the 2nd grade *Investigations* lesson will teach their lesson plan. Class will discuss launch, explore, and discussion portion of this math lesson.	**Required readings for 9/30:** • Van de Walle (pp. 148 – 156)	**Required assignment for 9/30:** • **Begin your Observation Task Written Reflection (description on Sakai)** • **Final Draft of 2nd grade Drop-in Lesson due Friday, 10/11 by 5:00pm on Sakai (description on Sakai)** **CCSS.Math.Practice.MP1** **CCSS.Math.Practice.MP2** **CCSS.Math.Practice.MP3** **CCSS.Math.Content.2.NBT.B.5**
10/2	**3rd Grade Drop-in Lesson** • Group assigned to the 3rd grade *Investigations* lesson will teach their lesson plan. Class will discuss launch, explore, and discussion portion of this math lesson.	**Required readings for 10/2:** • Van de Walle (pp. 440 – 448)	**Required assignment for 10/2:** • **Observation Task Written Reflection due Friday, 10/4 by 5:00pm on Sakai** **CCSS.Math.Practice.MP1** **CCSS.Math.Practice.MP4** **CCSS.Math.Practice.MP5** **CCSS.Math.Content.3.MD.B.3**
10/7	**4th Grade Drop-in Lesson** • Group assigned to the 4th grade *Investigations* lesson will teach their lesson plan. Class will discuss launch, explore, and discussion portion of this math lesson.	**Required readings for 10/2:** • Van de Walle (pp. 236 – 243)	**Required assignment for 10/2:** • **Final Draft of 4th grade Drop-in Lesson due Friday, 10/11 by 5:00pm on Sakai (description on Sakai)** **CCSS.Math.Practice.MP1** **CCSS.Math.Practice.MP2** **CCSS.Math.Practice.MP3** **CCSS.Math.Practice.MP5** **CCSS.Math.Content.4.NBT.B.5**
10/9	**5th Grade Drop-in Lesson** • Group assigned to the 5th grade *Investigations* lesson will teach their lesson plan. Class will discuss launch, explore, and discussion portion of this math lesson.	**Required readings for 10/9:** • Van de Walle (bottom of p. 273 – p. 280)	**Required assignment for 10/9:** • **Final Draft of 5th grade Drop-in Lesson due Friday, 10/11 by 5:00pm on Sakai (description on Sakai)** **CCSS.Math.Practice.MP1** **CCSS.Math.Practice.MP7** **CCSS.Math.Practice.MP8** **CCSS.Math.Content.5.OA.A.2**

TENTATIVE COURSE CALENDAR			
Date	**Topic**	**Reading Due**	**Assignment Due & Common Core Standards Addressed**
10/14	**Questioning Techniques** • We will investigate different questioning techniques that expert teachers often use in problem-based lessons.	**Required readings for 10/14:** • Chapter 4 of "*Teach Like a Champion*" • Read the drop-in lesson that you will teach during the 2nd field experience week. (lesson is posted on Sakai)	**Required assignment for 10/14:** • Get all materials ready to teach your drop-in lesson plan during the second field experience week. **CCSS.Math.Practice.MP3**
10/16	**Drop-in Lesson Preparation** • We will discuss the teaching of the drop-in lesson and answer any questions regarding the second field week experience.	**Required readings for 10/16:** • Read description of Curriculum-Based Lesson Project (available on Sakai)	**Required assignment for 10/16:** • Get all materials ready to teach your drop-in lesson plan during the second field experience week. **Try to apply Common Core Standards for Mathematical Practice to individual drop-in lessons.**
Oct. 21 – Oct. 25	**Field Experience Week Two** *Teach Drop-in Lesson* *Get Curriculum-Based Lesson Plan Materials from Co-op*		
10/28	**Classroom Management** • Techniques to develop a classroom environment that involves a community of learners will be discussed.	**Required readings for 10/28:** • Chapter 6 of "*Teach Like a Champion*"	**Required assignment for 10/30:** • **Begin your Drop-in Written Reflection (description on Sakai)** **None**
10/30	**Analyzing Classroom Teaching** • We will watch a video of a 3rd grade classroom and analyze the launch, explore, and discussion portion of a mathematics lesson (Turkey Time).	**No required readings for 10/30.**	**Required assignment for 10/30:** • **Drop-in Written Reflection due Friday, 11/1 by 5:00pm on Sakai** **CCSS.Math.Practice.MP1** **CCSS.Math.Practice.MP2** **CCSS.Math.Practice.MP3**

TENTATIVE COURSE CALENDAR			
Date	**Topic**	**Reading Due**	**Assignment Due & Common Core Standards Addressed**
11/4	**Curriculum-Based Lesson Plan** • Discuss the curriculum-based lesson project that is required for the third field week experience. • In-class help with curriculum-based lesson plan. Discuss your learning goals, ideas for helping students reach those learning goals, etc. with a partner to get feedback.	**No required readings for 11/4.**	**Required assignment for 11/4:** • Bring ideas/materials for curriculum-based lesson to class. • **Begin writing curriculum-based lesson plan.** **Try to apply Common Core Standards for Mathematical Practice to individual drop-in lessons.**
11/6	**Curriculum-Based Lesson Plan** • In-class help with curriculum-based lesson plan. Discuss your learning goals, ideas for helping students reach those learning goals, etc. with a different partner to get more feedback.	**No required readings for 11/6.**	**Required assignment for 11/6:** • Meet with instructor outside of class to discuss your lesson plan. • **Continue writing curriculum-based lesson plan.** **Try to apply Common Core Standards for Mathematical Practice to individual drop-in lessons.**
11/11	**Curriculum-Based Lesson Plan** • ***Optional class*** – please bring in a rough draft of your lesson plan if you want to meet individually with the instructor to get feedback/ideas on your curriculum-based lesson plan. Also, come ready with specific questions to ask your instructor.	**No required readings for 11/11.**	**Required assignment for 11/11:** • Meet with instructor outside of class to discuss your lesson plan. • **Complete curriculum-based lesson plan (final draft due Friday, 11/22 by 5pm on Sakai).** **Try to apply Common Core Standards for Mathematical Practice to individual drop-in lessons.**
Nov. 13 - Nov. 19	**Field Experience Week Three** *Teach Curriculum-Based Lesson*		

TENTATIVE COURSE CALENDAR			
Date	**Topic**	**Reading Due**	**Assignment Due & Common Core Standards Addressed**
11/20	**Analyzing Classroom Teaching** • We will watch a video of a 6th grade classroom and analyze the launch, explore, and discussion portion of a mathematics lesson (Patterns).	**No required readings for 11/20.**	**Required assignment for 11/20:** • **Begin writing curriculum-based lesson Written Reflection.** • **Final Draft of curriculum-based lesson plan due Friday, 11/22 by 5:00pm on Sakai.** **CCSS.Math.Practice.MP4** **CCSS.Math.Practice.MP5** **CCSS.Math.Practice.MP7** **CCSS.Math.Practice.MP8** **CCSS.Math.Content.6.EE.B.6**
11/25	**Analyzing Classroom Teaching** • We will watch a video of a 2nd grade classroom and analyze the launch, explore, and discussion portion of a mathematics lesson (Marshmallows).	**No required readings for 11/25.**	**Required assignment for 11/25:** • **Continue writing curriculum-based lesson Written Reflection** **CCSS.Math.Practice.MP2** **CCSS.Math.Practice.MP3** **CCSS.Math.Practice.MP4** **CCSS.Math.Practice.MP5** **CCSS.Math.Content.2.MD.D.10**
Nov. 27 - Dec. 1	**Thanksgiving Break**		
12/2	**Analyzing Classroom Teaching** • We will watch a video of a 4th grade classroom and analyze the launch, explore, and discussion portion of a mathematics lesson (Valentine Exchange).	**No required readings for 12/2.**	**Required assignment for 12/2:** • **Continue writing curriculum-based lesson Written Reflection** **CCSS.Math.Practice.MP1** **CCSS.Math.Practice.MP6** **CCSS.Math.Practice.MP7** **CCSS.Math.Practice.MP8** **CCSS.Math.Content.4.OA.A.3**
12/4 **(Last Day of Class)**	**Teach Like a Champion** • Investigate techniques shared by expert teachers **Closure to EDUC335** • Review of ideas learned	**Required readings for 12/4:** • Read any chapter in "*Teach Like a Champion*" other than Chap. 4 or Chap. 6	**Required assignment for 12/4:** • **Curriculum-Based Written Reflection due Friday, 12/6 by 5:00pm on Sakai** **None**