

Math 300a —ELEMENTARY NUMBER SYSTEMS AND APPLICATIONS

T/Th 8:00-9:15 PM Darwin 109 — 3 units

Instructor	Dr. Ford
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Office hours	T/Th 9:15-10:30 and by appointment

Prerequisite Math 150 or other GE mathematics course

Required materials Bassarear, *Mathematics for Elementary School Teachers (3rd ed.)*
Bassarear, *Mathematics for Elementary School Teachers: Explorations (3rd ed.)*
Notebook with graph paper
Calculator, but not a cell phone or other communicating device

Curriculum

This course, designed for prospective elementary and middle school teachers, explores many of the mathematical ideas underlying the K-8 mathematics curriculum. The emphasis is on understanding the mathematical ideas and procedures, and on representing them in ways that children can understand. The main goals of the course are:

- to help you understand how and why numbers and arithmetic work the way they do;
- to develop your self-confidence as a doer of mathematics and as a problem solver,
- to help you appreciate and enjoy mathematics; and
- to link mathematics and the teaching of mathematics to children.

This course covers the following content in Bassarear:

<u>TOPIC</u>	<u>CHAPTER.SECTION</u>
Problem solving and pattern finding	1.1, 1.2, 1.3, 1.4
Venn Diagrams	2.1
Numeration systems and bases	2.3
Whole number models and operations	3.1, 3.2, 3.3, 3.4
Divisibility, primes, and composites	4.1, 4.2
Factors and multiples	4.3
Integers	5.1
Fraction models and operations	5.2, 5.3
Decimal models and operations	5.4

Course requirements

Daily reading and notes You will be expected to read a section of the text for each class and to be prepared to discuss it and to ask questions in class. Keep your reading notes and in-class notes (and anything else handwritten that you choose to insert) in a bound or loose-leaf graph paper notebook; you may use this notebook (but not your textbooks) during tests. Please turn off your cell phone during class. Cell phones and earphones are not allowed during class.

Daily homework problems (10% of grade) Exercises from the green textbook will be assigned for each class. These will be collected and graded every week. **No late homework will be accepted, but early homework is fine!** Your two lowest homework grades (including missed assignments) will be discarded.

Take-home quizzes & exams (40% of grade) Take-home quizzes and exams, which require complete typed solutions with careful explanations, will be collected and graded three times during the semester. **Late papers will be severely penalized.**

Investigation (20% of grade) You will work collaboratively in a group of three or four students over several weeks to explore a number theoretic (arithmetic) question in depth and produce an extensive written report. **Late reports will be severely penalized.**

Reflections (5% of grade) You will write short reflections about yourself as a learner and doer of mathematics, at both the beginning and the end of the course. **Late reflections will be severely penalized.**

Participation (5% of grade) Group in-class explorations and class discussions are an integral part of this course; your active, on-time participation is critical.

Final exam (20% of grade) A comprehensive in-class final exam on **Tuesday, December 12, 8:00 – 9:50 a.m. No early, late or makeup exams will be given.**

Grading

You will receive a letter grade in this course unless you formally request the CR/NC option. You will not be granted an Incomplete except in extraordinary circumstances and by explicit arrangement. Keep up with your work; it's very hard to catch up after falling behind. **You may submit work by e-mail or personal delivery before the assignment is due, but late or illegible homework will not be accepted, and late take-home quizzes and exams and reports will be severely penalized. Assignments are due at the beginning of class on the due date.** Grades are not competitive, but good grades are earned by consistent high quality work, perfect attendance, and substantive classroom participation. Letter equivalents to numerical scores are: A range, 90-100; B range, 80-89; C range, 70-79; D range, 65-69; below **65** failing. Both in-class work and homework are important to your success. You are encouraged to work with your classmates both in and out of class. You must write up your own take-home quizzes and exams and homework assignments **independently without help**, but you may collaborate on all problems and ideas in preparation for that writing. The in-class final exam must be done individually, along with the reflections. Please read the SSU Cheating and Plagiarism Policy at <http://www.sonoma.edu/uaffairs/policies/cheatingpolicy.htm>

Be sure to see me if you are having difficulty with the course content or assignments. It is a very good idea to come to my office hours with work attempted and focused questions well before assignments are due!

Accommodation

If you have a disability that requires accommodation in this class, you must notify me before the end of the second week of class. You must register with the campus Disabled Student Services, Salazar Hall Room 1049, 664-2677. DSS will then provide you written documentation, which you must then present to me.

Schedule

Tentative due dates for major course assignments are as follows; homework assignments are due weekly, normally on Thursdays. (These dates may be modified as circumstances change):

Thursday, Aug. 24	Beginning Reflection & Appendix
Tuesday, Aug. 29	Take-home quiz #1
Tuesday, Oct. 3	Take-home exam #2
Tuesday, Nov. 28	Take-home exam #3
Tuesday, Nov. 7	Group Investigation
Thursday, Dec. 7	Final Reflection
Tuesday, Dec.12	Final Exam

Some important University dates (see <http://www.sonoma.edu/ar/calendars/index.shtml>)

September 5	Last day to add/drop
September 18	Last day to drop with W or to change grading
November 10	Last day to petition to drop (with serious & compelling reason only)

Some important University statements and policies - Please read:

University Mission Statement: <http://www.sonoma.edu/university/mission.shtml>

University Diversity Vision Statement: <http://www.sonoma.edu/diversity/>

Cheating & Plagiarism Policy: <http://www.sonoma.edu/uaffairs/policies/cheatingpolicy.htm>

Withdrawal policy: <http://www.sonoma.edu/uaffairs/policies/withdrawalfromcourses.htm>