Math 247 Syllabus | Spring 2018 | Laurel Langford
Math for Elementary Teachers II | laurel.langford@uwrf.edu
Section 2; Credits: 4 | http://langfordmath.com/

Office hours (getting help): I will be available in my office to answer questions (206E NH; office phone 715-425-4360) MTWF 10:00-10:45, MWF 2:00-2:45. I am around a lot during the day when I am not in class, and I am (almost) always happy to see you (it is a good idea to make an appointment if you are able to plan ahead).

Schedule: We will meet in NH 205 at 11:00 Mon., Wed. and Fri. and in DL 161 at 11:00 Tues.

Final Exam: Wednesday May 9, 2018 1:00-3:00 PM

Text: you should have the textbook Mathematics for Elementary Teacher by Bennet and Nelson (6 ed.)

Announcements, schedules, assignments and review sheets are posted on my web site: http://langfordmath.com/. I will be posting your scores on D2L. Sometimes there are problems (both human and machine errors). *Please save your graded work until after you have checked your grades in D2L to make sure I have scores recorded correctly.*

Supplies: You will need to have the following supplies at home: ***scissors, tape, colored pencils*** *(or similar), and a* ***ruler***. An emphasis of this class is arithmetic, so you will *not* be allowed to use a calculator for most assignments and tests.

Grading: Your grade will be based primarily on the weighted average of your assessments. I will occasionally raise a grade for someone who shows a greater understanding of the content (eg. in class discussions) than is reflected in the test scores, but I never lower a grade below what is indicated by the weighted average.
indicated by the weighted averages below:

A: 94-100%	A-: 90-93%	B+: 87-89%	B: 84-86%	B-: 80-83%
C+: 77-79%	C: 74-76%	C-: 70-73%	D: 60-69%	

Weighted averages: tests: 80%, daily homework: 10%, mini-projects 5%, attendance and class participation 5%

Tests: 80%. There will be 3 hour-long tests (scaled to 100 pts), and a comprehensive final exam (scaled to 200 pts). There may also be some shorter quizzes (variable points).

Daily Homework: 10%. Homework scores will come from one of two sources:

- Homework completed outside of class and submitted
- Homework quizzes: in class quizzes on not-collected practice problems. You may use hand-written notes during homework quizzes.

homework scores will be adjusted in the gradebook to be equally weighted. **The highest 10 homework scores** will make up the homework section (10%) of your final grade. **No late daily homework** will be accepted.

Mini-projects: 5%. Assignments of a somewhat more substantive nature, and expected to be of somewhat higher quality work than the daily homework. Later work will be accepted for partial credit (50-75% depending time of submission).

Attendance and class participation: 5%. I will take attendance regularly, and update the participation grade in the grade book about every 2 weeks. I plan to use the following function to calculate the participation grade.

To get full credit, you can miss no more than 4 classes, and participate in classroom activities and discussions.

Individual concerns: If you are concerned about any aspect of the course requirements (test taking, homework, participation), please make an appointment to talk to me about your concerns.

Teacher Content Standards: The College of Arts and Sciences has a webpage that links you to the teacher content standards by course number. " DPI CONTENT STANDARDS: The State of Wisconsin has established content standards that education programs are required to have in their courses. These standards are the basis of the Praxis II Content exams that all licensure candidates are required to pass prior to receiving a license to teach in Wisconsin." Linked by course number from this page:
https://www.uwrf.edu/MATH/WisconsinContentTeacherStandardsMathematicsCourses.cfm.

The UWRF promotes safe, inclusive and effective learning environments that protect the rights and support the interests of both students and faculty. For additional information regarding our inclusivity expectations, academic accommodations, academic conduct expectations and processes, and other syllabi information, please consult http://go.uwrf.edu/Syllabi

Course Objectives

At the end of this course students will be able to:

- Explain why various mathematical procedures work, as well as carry out those procedures.
- Use appropriate mathematical language and symbols when discussing or writing about mathematics.
- Describe relationships/connections between and among mathematical topics.
- Solve mathematical problems based on the concepts presented in each topic area.
- Solve "real-world" application problems from each topic area.
- Use appropriate technology to interpret, model, and solve mathematical problems.

Required Course Content

A. Number Theory 1. Primes and composites 2. Divisibility 3. Least common multiples and greatest common factors 4. Fundamental Theorem of Arithmetic 5. Technology Applications: Graphics software – example – Kid Pix * B. Integers, Rational and Real Numbers 1. Concepts, and models 2. Number sense 3. Equivalence 4. Order 5. Properties 6. Models for the operations 7. Algorithms for the operations 8. Technology Applications: Calculators & Rational Number Software – example – Mighty Math Number Heroes * C. Ratio, proportion, and percents 1. Equivalent ratios 2. Rates 3. Relating fractions, decimals and percents 4. Models for percent 5. Technology Applications: Graphics software – example – Kid Pix * D. Geometry 1. Similarity 2. Tesselations using regular polygons 3. Nets and modeling of 3-D shapes: focus on pyramids, prisms, and regular polyhedra 4. Euler's Formula 5. Technology Applications: Geometry Software – examples – Geometer's Sketchpad and Tesselmania *	E. Measurement 1. Measurement systems - English, non-standard systems 2. Surface area 3. Volume F. Data Analysis 1. Organizing and interpreting information (tables and graphs) 2. Measures of central tendency 3. Measures of dispersion 4. Applications and misuse of statistics 5. Technology Applications: Data Analysis & Generation Software – examples – Data Explorer and Tabletop * G. Probability 1. Sample spaces, outcomes, and events 2. Tree diagrams and other representations 3. Experimental and theoretical probability 4. Independent and dependent events 5. Mutually exclusive events 6. Counting techniques 7. Odds 8. Applications of Pascal's Triangle 9. Technology Applications – Implements of Chance – examples – Kid Pix and Mighty Math Number Heroes * H. Manipulatives Integrated Throughout Curriculum (A – G) Including, but not limited to: 1. Counters, snap cubes, and number lines 2. Fraction pieces 3. Base blocks 4. Pattern blocks 5. Cuisenaire rods 6. Geoboards 7. Power solids 8. Polydrons 9. Protractors, rulers, and compasses

* Example Software Only – May use alternative software or applications on the www

Mode of Instruction: Face to Face **Prerequisites:** A grade of C or better in Math 246.

Projected calendar:

Weeks 1-3: integers, basic concepts of fractions (test)
Weeks 4-7: operations on fractions, prime factorization (test)
Weeks 8-10: ratios and similarity (test)
Weeks 11-12: Measurement (quiz?)
Weeks 13-14: Probability and Data (final exam)