

MATH 111X: Everyday Mathematics

Fall 2016

Section 001

3 Credit Hours

Instructor:	Kristen Abernathy	Instructor's Teaching Schedule:	MWF 9:30-10:45 MW 11:00-12:15 TR 9:30-10:45
Office:	Bancroft 148		
Office Phone:	803-323-4681	Office Hours:	M 2:00-4:00 W 12:30-2:30
Math Department:	803-323-2175		
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The instructor reserves the right to make modifications to this syllabus. Students will be notified in class & by email.

A complete syllabus and schedule is available at: www.winthrop.edu/cas/math/syllabus.

Course Description: This course covers the skills and tools needed to work with quantitative information in daily life - numbers in the news, taxes, debt, inflation, probabilities. The emphasis is on real world, open-ended exercises that involve reading, writing, calculating, synthesizing, and clearly reporting results. Topics include back-of-an-envelope estimation, descriptive statistics, linear, and exponential models, spreadsheets and the wise use of internet resources.

Determination of Grade:

Homework (25%) Homework will be regularly assigned from each section and a subset will be collected and graded for correctness. For one or two of these graded problems, you are expected to turn in a written solution that explains the mathematical steps taken to solve the problem. Homework will be graded on the ability to correctly solve the mathematical problem, as well as provide a clear explanation of the mathematical problem-solving steps taken for the designated problems that require written solutions. Late homework will be accepted for one week after the due date at a five point penalty for each day it is late.

Term Paper (15%) One of the important parts of this course is the term paper. Yes, you didn't expect a term paper in a math course. But this course is about learning techniques to understand things that matter in the real world. Your paper will give you a chance to practice these learning techniques. You will choose a topic, find some data and quantitative information about it, perhaps form a hypothesis, explore "what-if" questions, make estimates, analyze data and draw conclusions. In other words, you will use many of the techniques and ideas of this course to make a quantitative analysis of a topic that interests you. The best way to do well in this assignment is to write about something that really matters to you. You may work with a classmate and submit a joint paper.

Tests (45%) There will be three tests as listed on the attached schedule. Each test will comprise of an in-class portion and take home portion. The take-home portion will be open book and open notes, but it must be the course textbook (no supplementary material). You are expected to take the tests and the final exam at the scheduled time. Make-up tests are not given. An unexcused absence will result in the grade of zero for any missed test. Excused absences from tests will be dealt with at the end of the term and may depend on individual circumstances. Anticipated absences should be reported and verified in advance; emergency absences must be verified within one week after returning to class. Any questions concerning grading of tests must also be resolved within one week after the tests are returned.

Final Exam (15%) The cumulative final exam is scheduled for Friday, December 9th, 2016, 11:30-2:00.

Letter Grade Determination:

92-100 A	90-91.99 A-	87-89.99 B+	82-86.99 B	80-81.99 B-
77-79.99 C+	72-76.99 C	70-71.99 C-	67-69.99 D+	62-66.99 D
60-61.99 D-				

Text, Materials, and Resources

- Required Text: *Common Sense Mathematics* (can be downloaded for free at <http://www.cs.umb.edu/~eb/qrbok/commonsense.pdf>)
- MATH111X students are expected to have a scientific calculator.
- Students are encouraged to use office hours as a way to receive extra help.
- The Mathematics Tutorial Center information is available at: www.winthrop.edu/mtc .

Course Policies

1. Winthrop University is dedicated to providing access to education. If you have a disability and require specific accommodations to complete this course, contact the Office of Disability Services (ODS) at 323-3290. Once you have your official notice of accommodations from the Office of Disability Services, please inform me as early as possible in the semester.
2. Review the student code of conduct for university policies on academic misconduct. Academic misconduct will not be tolerated and will result in a failing grade on the assignment and/or in the course. The full handbook is available online at: (<http://www2.winthrop.edu/studentaffairs/handbook/StudentHandbook.pdf>)
3. All electronic devices (including cell phones) other than a calculator should be set to silent and kept in your book bag or purse throughout class time unless otherwise instructed.
4. Students may not use cell phones, MP3 players, or other electronic devices in place of a calculator. Students may not share calculators during quizzes, tests, or the final exam. Any student caught using an unapproved electronic device during a quiz, test, or the final exam will receive a grade of zero on that assessment and the incident will be reported to the Dean of Students.

Course Goals/Student Learning Outcomes and Alignment with the General Education Goals

MATH111X meets the Quantitative Reasoning requirement through the following goal alignment. Further when not used as the QR requirement, this course meets the Logic, Language, and Semiotics requirement through activities and requirements that require students to: (1) use logic and mathematical information to draw reasonable conclusions and (2) use the symbols and language of mathematics to communicate about problems and present solutions.

Course Goals/SLO	General Education Program Goals	University Level Competencies
Students will develop basic skills and tools to analyze quantitative information in daily life.	2.1 Solve mathematical problems of the type necessary for living in today's and tomorrow's world. 2.2 Make valid inferences from data. 2.3 Understand that quantitative analysis is important to almost every endeavor of humankind. 2.4 Understand the concept and application of quantitative relationships. 3.1 Identify sound and unsound reasoning. 3.2 Analyze and use a variety of information gathering techniques. 3.3 Conduct independent research. 3.4 Use computers competently.	<p>Competency 1 Winthrop graduates think critically and solve problems. Winthrop University graduates reason logically, evaluate and use evidence, and solve problems. They seek out and assess relevant information from multiple viewpoints to form well-reasoned conclusions. Winthrop graduates consider the full context and consequences of their decisions and continually reexamine their own critical thinking process, including the strengths and weaknesses of their arguments.</p> <p>Competency 3 Winthrop graduates understand the interconnected nature of the world and the time in which they live. Winthrop University graduates comprehend the historical, social, and global contexts of their disciplines and their lives. They also recognize how their chosen area of study is inextricably linked to other fields. Winthrop graduates collaborate with members of diverse academic, professional, and cultural communities as informed and engaged citizens.</p> <p>Competency 4 Winthrop graduates communicate effectively. Winthrop University graduates communicate in a manner appropriate to the subject, occasion, and audience. They create texts – including but not limited to written, oral, and visual presentations – that convey content effectively. Mindful of their voice and the impact of their communication, Winthrop graduates successfully express and exchange ideas.</p>
Students will use concepts in algebra, statistics, and discrete mathematics to demonstrate reasoning through problem solving.		
Students will develop oral and written skills to interpret and communicate mathematical information.		
Students will use appropriate technology to study and understand real-world data.		

For purposes of departmental and general education program assessment of student learning in this course, performance on sections of the final exam may be tabulated for all students. Individual tests and course grades may also be used as an indication of progress toward the above goals.

Attendance Policy

The University attendance policy is stated in the current catalog (<http://www.winthrop.edu/recandreg/default.aspx?id=7380>).

Tentative Course Schedule

Date		Topic	
T	8/23	Ch. 1	Introductions, Fermi estimates
R	8/25	Ch. 1	Back of the Envelope Calculations
T	8/30	Ch. 2	Discuss term paper, Units
R	9/1	Ch. 2	Unit Conversions
T	9/6	Ch. 3	Percentages, Sales Tax and Discounts
R	9/8	Ch. 4	Inflation
T	9/13	Ch. 5	GPA
R	9/15	Ch. 5	Average Values
T	9/20		Test 1
R	9/22	Ch. 6	Mathematics and <i>Excel</i>
T	9/27	Ch. 6	Topic for term paper due, data analysis
R	9/29	Ch. 6	Data analysis and income
T	10/4	Ch. 7	Electricity Bills and Rates
R	10/6	Ch. 7	Linear Models and Income Taxes
T	10/11	Ch. 8	Linear Models and Climate Change
R	10/13	Ch. 8	Model Testing
T	10/18	Ch. 9	Outline for term paper due, Compound Interest
R	10/20	Ch. 9	Exponential Models and Depreciation
T	10/25		Test 2
R	10/27	Ch. 10	Borrowing and Saving
T	11/1	Ch. 10	Mortgages and Amortization Schedules
R	11/3	Ch. 10	Saving for College and Retirement
T	11/8		No Class – Election Day
R	11/10	Ch. 11	1 st draft of term paper due, Introduction to Probability
T	11/15	Ch. 11	Raffles and Lotteries
R	11/17	Ch. 13	Independent Events
T	11/22	Ch. 13	How Good is That Test?
R	11/24		No Class – Thanksgiving Break
T	11/29		Test 3
R	12/1		Review for Final, Term paper due

Drop/Add: Through 8/26
Fall Break: F 10/14 to M 10/17

Course Withdraw Date: F 10/21
Final Exam: F 12/9 11:30-2:00