

## MA 112 Essential Mathematics

**Mission of the University:** Washburn University enriches the lives of students by providing opportunities for them to develop and to realize their intellectual, academic, and professional potential, leading to becoming productive and responsible citizens. We are committed to excellence in teaching, scholarly work, quality academic and professional programs, and high levels of faculty-student interaction. We develop and engage in relationships to enhance educational experiences and our community. Washburn University Board of Regents, 2010

**Catalog Description:** This course will focus on the mathematical skills and knowledge required for quantitative literacy, so the topics of understanding numerical relationships, financial mathematics, probability, and data analysis and statistics will be addressed. Each academic year the course will adopt a theme such as the political endeavor, the environment, art and culture and will study the topics from the context of the theme. The course will be project-based and to the extent possible the projects will investigate contemporary issues related to the overarching course theme.

**Instructor:** Dr. Donna LaLonde ([donna.lalonde@washburn.edu](mailto:donna.lalonde@washburn.edu)),  
CA 201 or MO 275 H, 785.670.1943

**Prerequisite:** A grade of C or better in MA 104 Intermediate Algebra (or equivalent course approved by the mathematics department) OR ACT math score of at least 22 OR math placement score acceptable with the department.

**Credit Hours:** 3

### Text and

**Materials:** *Common Sense Mathematics*, Ethan D. Bolker and Maura Mast. This textbook is available as a pdf document on the course website. Graphics calculator will be useful. In class, Excel will be utilized; however, students may utilize an open source alternative e.g. [Open Office](#). Students will need to be able to access the campus network.

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**Distribution Area:** *Natural Sciences and Mathematics*

**Primary Student Learning Outcome:** Quantitative reasoning involves the ability to work with numerical data and the higher- order thinking skills required to make and understand mathematical arguments. Scientific literacy involves the acquisition and application of skills and knowledge necessary to understand the nature and content of science, and to evaluate scientific arguments using evidence-based reasoning. Students will be able to understand and develop arguments supported by quantitative evidence, clearly communicate those arguments in a variety of formats (using words, tables, graphs, statistical inference, mathematical equations and functions, etc., as appropriate), and apply mathematical and scientific methods to solve problems from a wide array of contexts and everyday situations.

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### Course Overview

This course will meet the course objectives by studying four mathematical units: (1) Understanding numerical relationships, (2) Financial mathematics, (3) Probability, and (4) Data analysis and statistics. We will only be successful if you are an engaged participant. This will require completing the assigned homework, coming to class ready to learn, and being flexible. Typically class will be a combination of lecture and demonstration small group work. We are meeting in a lab so will have access to the internet and other technology tools.

## Course Objectives and Assessments

Upon successful completion of this course students will be able to:

1. Complete, correctly and concisely all necessary computations to solve a problem;
    - ✓ Assessment (Tasks)
      - Homework and Problem Scenarios
      - Semester Project
      - Exams
  2. Apply algebraic, geometric and statistical methods to solve applied problems;
    - ✓ Assessment (Tasks)
      - Homework Problem Scenarios
      - Semester Project
      - Exams
      - Homework
  3. Use appropriate technology e.g. graphics calculators, spreadsheets, to manipulate data sets;
    - ✓ Assessment (Tasks)
      - Homework Problem Scenarios
      - Semester Project
      - Exams

Explain, in writing and orally, information represented analytically (equations), graphically and numerically;

    - ✓ Assessment (Tasks)
      - Homework Problem Scenarios
      - Semester Project
  4. Explain any assumptions made in the development of a model;
    - ✓ Assessment (Tasks)
      - Homework
      - Semester Project
  5. Develop and defend a position statement using appropriate quantitative information;
    - ✓ Assessment (Tasks)
      - Homework Problem Scenarios
      - Semester Project
  6. Communicate in writing and orally the conclusions of their investigations.
    - ✓ Assessment (Tasks)
      - Homework Problem Scenarios
      - Semester Project
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**Criteria:** Successful acquisition of these general education course objectives will be measured by:

- Homework and Problem Solving Scenarios scores will be used to measure the course objectives.

Students will be evaluated as follows:

**Advanced:** overall projects average score  $\geq 3.5$

**Target:** overall projects average score greater than or equal to 2.0 but less than 3.5

**Developing:** overall projects average score greater than 1.5 but less than 2.0

**Beginning:** overall project average score  $\leq 1.5$

- Semester Project will be evaluated using a holistic rubric. Students will be evaluated as follows:
  - Advanced:** overall projects average score  $\geq 3.5$
  - Target:** overall projects average score greater than or equal to 2.0 but less than 3.5
  - Developing:** overall projects average score greater than 1.5 but less than 2.0
  - Beginning:** overall project average score  $\leq 1.5$
  
- Exam Scores will be used to measure course objectives.
  - Advanced:** exam average  $\geq 90\%$
  - Target:** exam average to 70% but less than 90%
  - Developing:** exam average greater than 50% but less than 70%
  - Beginning:** exam average less than or equal to 50%

**An overall SLO Evaluation will be determined:**

- Advanced:** weighted assessment score = 4.0
- Target:**  $2.5 \leq$  weighted assessment score  $< 4.0$
- Developing:**  $1.5 \leq$  weighted assessment score  $< 2.5$
- Beginning:** weighted assessment score  $< 1.5$

Note: Students who were enrolled but did not regularly attend will be assigned a score of NP for non participation

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**Course Grade**

**Homework and Problem Scenarios (25% of your grade):**

It takes practice to be proficient. Homework will consist of exercises to help you develop the mathematical skills to support quantitative literacy and problem scenarios that will help you acquire the ability to use quantitative information in decision-making. We will frequently begin work on these scenarios in class, so class attendance is essential.

**Semester Project (25% of your grade):**

The ability to work effectively and efficiently as a part of a team is an essential skill. It requires practice to develop this ability, so the semester project is a team project. Each team will have 3 members. As with most projects you will be work on, there will be individual contributions i.e. a submission from each member of the team will be required and team contributions i.e. one submission from the team. Each team will complete a project investigating an issue that is related to the course theme (the environment) and has an impact on their community. The project will be an opportunity to demonstrate your ability to collect, analyze, and discuss quantitative data.

**Three in class exams (30% of your grade)**

The unit exams will assess your acquisition of the mathematical content as well as the quantitative literacy objectives.

**Final Exam (20% of your grade)**

A comprehensive final exam will be given.

**A final course grade will be assigned as follows:**

Grade of **A** if weighted average of components listed above **is greater than or equal to 90%**.

Grade of **B** if weighted average of components listed above is **greater than or equal to 80%**.  
Grade of **C** if weighted average of components listed above is **greater than or equal to 70%**.  
Grade of **D** if weighted average of components listed above is **greater than or equal to 60%**.  
Grade of **F** if weighted average of components listed above is **less than 60%**.

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## GENERAL INFORMATION

**Academic Calendar:** The important University dates and deadlines are posted [online](#). Pay attention to the MyWashburn Announcements. This will ensure you are well informed of important deadlines and events. FYI, Friday, August 31<sup>st</sup> is the **last day for 100% Tuition Refund** (Activity Fees are not refunded), and Friday, November 2<sup>nd</sup> is the last day to withdraw from a full term Fall 2012 course.

### **Definition of a Credit Hour:**

For every credit hour awarded for a course, the student is typically expected to complete approximately one hour of classroom instruction, online interaction with course material, or direct faculty instruction and a minimum of two additional hours of student work each week for approximately 15 weeks for one semester or the equivalent amount of work over a different amount of time.

### **Academic Misconduct Policy:**

All students are expected to conduct themselves appropriately and ethically in their academic work. Inappropriate and unethical behavior includes (but is not limited to) giving or receiving unauthorized aid on examinations or in the preparation of papers or other assignments, or knowingly misrepresenting the source of academic work. Washburn University's Academic Impropriety Policy describes academically unethical behavior in greater detail and explains the actions that may be taken when such behavior occurs. For guidelines regarding protection of copyright, consult <http://www.washburn.edu/statements-disclosures/copyright/index.html>. For a complete copy of the Academic Impropriety Policy, contact the office of the Vice President for Academic Affairs, Bradbury Thompson Alumni Center Suite 200, or go on-line to: <http://www.washburn.edu/faculty-staff/faculty-resources/faculty-handbook/faculty-handbook-section-7.html>.

### **Student Health Services/WU Counseling Services:**

Student Health Services (SHS) works closely with WU Counseling Services to provide support for students experiencing challenges with learning and adapting to university life. SHS also offers urgent care for illness and injury, sports, school, and travel abroad physicals, well woman exams, immunizations/vaccinations and care of chronic illness such as diabetes and high blood pressure. More information can be found at <http://washburn.edu/current-students/services/health-services/index.html> and <http://washburn.edu/current-students/services/counseling/index.html>

### **Disability Services:**

The Student Services Office is responsible for assisting in arranging accommodations and for identifying resources on campus for persons with disabilities. Qualified students with disabilities must register with the office to be eligible for services. The office **MUST** have

appropriate documentation on file in order to provide services. Accommodations may include in-class note takers, test readers and/or scribes, adaptive computer technology, brailled materials. Requests for accommodations should be submitted at least two months before services should begin; however, if you need an accommodation this semester, please contact the Student Services Office immediately.

Location: Student Services, Morgan Hall Room 135

Phone: 785-670-1629 or TDD 785-670-1025

E-Mail: [student-services@washburn.edu](mailto:student-services@washburn.edu)

Students may voluntarily identify themselves to the instructor for a referral to the Student Services Office.

### **Office of Academic Advising:**

As a Washburn student, you may experience difficulty with issues such as studying, personal problems, time management, or choice of major, classes, or employment. The Office of Academic Advising is available to help students either directly through academic advising, mentoring, testing and developing learning strategies or by identifying the appropriate University resource. If you feel you need someone with whom to discuss an issue confidentially and free of charge, contact Academic Advising in Morgan 122, 785-670-1942, [advising@washburn.edu](mailto:advising@washburn.edu).

### **Withdrawal Policy:**

During fall and spring semesters, students may go online and withdraw from full semester courses through the second week of class with no recorded grade. From the third through the eleventh week a "W" is recorded for any dropped course. After the eleventh week, there are NO withdrawals, and a grade will be assigned for the course. These deadlines will be different for short-term, out-of-sequence, or summer courses. To view the deadline dates for your courses visit the "Last Day" Deadlines web page at:

<https://www2-prod.washburn.edu/self-service/coursedates.php>

### **Attendance/Administrative Withdrawal:**

Although it is the student's responsibility to initiate course withdrawals, an instructor, after due notice to the student, may request withdrawal of the student from a course because of nonattendance through the same date as the last day a student may withdraw from a course. This would NOT absolve the student of financial responsibility for tuition/fees for the course in question. The inclusion of this information in the course syllabus is considered due notice.

### **Official E-Mail Address:**

Your Washburn University e-mail address will be the official address used by the University for relaying important messages regarding academic and financial information and the University will consider this your official notification for important information. It may also be used by your instructors to provide specific course information. If you prefer to use an alternate e-mail address to receive official University notices, you can access your MyWashburn e-mail account, choose the "Options" tab, and select "Settings", scroll to the bottom of the screen, click enable forwarding and enter the e-mail address you would like your Washburn emails forwarded to in the "mail forwarding" area. Click add and then click on save changes. This will complete the

process of forwarding your Washburn e-mail. It is your responsibility to ensure that your official e-mail box does not exceed your message quota resulting in the inability of e-mail messages to be accepted into your mailbox.

**Success Week:**

Success Week for undergraduate students is designated as the five week days preceding the first day of scheduled final examinations each Fall and Spring semester. Success Week is intended to provide students ample opportunity to prepare for final examinations. For academic programs, the following guidelines apply:

A. Faculty are encouraged to utilize Success Week as a time for review of course material in preparation for the final examination. If an examination is to be given during Success Week, it must not be given in the last three days of Success Week unless approved by the Dean or Department Chair. Assignments worth no more than 10% of the final grade and covering no more than one-fourth of assigned reading material in the course may be given.

B. Major course assignments (extensive research papers, projects, etc.) should be due on or before the Friday prior to Success Week and should be assigned early in the semester. Any modifications to assignments should be made in a timely fashion to give students adequate time to complete the assignments.

C. If major course assignments must be given during Success Week, they should be due in the first three days of Success Week. Exceptions include class presentations by students and semester-long projects such as a project assignment in lieu of a final. Participation and attendance grades are acceptable.

The Success Week policy excludes make-up assignments, make-up tests, take-home final exams, and laboratory examinations. It also does not apply to classes meeting one day a week for more than one hour. All University laboratory classes are exempt from this policy.