Finite Mathematics – MA 103 – WINTER 2015

MEETING DAYS: M W R F
CLASS ID: MA 103 – 1
MEETING TIMES: 12:00 – 12:50
CREDITS: 4
CALL NUMBER: 10383
ROOM: Jamrich 3102

PROFESSOR: Dr. Bao Q. Truong, 2216 Jamrich Hall, 906 – 227 – 1610
e-mail: btruong@nmu.edu is my preferred method of communication and the most reliable way to reach me. Please add MA103 in the subject line.

OFFICE HOURS: 10:00 – 10:50, 2:00 – 2:50 and 4:00 – 4:50 M W R F or by appointment.

PREREQUISITES: MA 100 or satisfactory score on the Math Placement Exam


COURSE DESCRIPTION: The course covers linear equations, systems of linear equations, matrices, inequalities, linear programming, functions, the mathematics of finance, permutations, combinations and probability.

This course is designed primarily for students in business, economics, management, and the social sciences and life sciences. MA 103 builds on the algebraic skills of MA 100 while emphasizing applications, modeling, and decision-making from business, social and natural sciences, medicine, and other areas. It is a prerequisite for MA 171 and can be used as a Liberal Studies elective under Division III Natural Sciences/Mathematics.

COURSE GOAL: Linear equations, systems of linear equations, matrices, inequalities, linear programming, functions, the mathematics of finance, matrices, permutations, combinations and probability.

Upon the completion of the course students will be able to:
- Understand linear functions, including functional notation, graphing, and modeling
- Understand finance mathematics, including amortization, and modeling mortgages and annuities
- Solve systems of equations using matrices
- Model and solve linear programming applications using the simplex method
- Understand basic probability and statistics concepts

Assessment of these course objectives will be through chapter tests, quizzes and the final exam

HOMEWORK: You should work out a substantial number of exercises from the text that pertain to the sections that we are going over. However, textbook exercises will not be collected or graded. I will let you know which section of the text is covered in class, but I will not assign exercises from the text.

If you want me to go over a particular textbook exercise in class, please email me the page, section and exercise number so that I have a chance to review it. I will probably not go over any homework problem unless you email it to me first!

At the beginning of most of classes, you might be asked to copy one or two homework problems from your own note.
TESTS: All chapter tests will be given during class and you will have an hour to take each test. You have to take all tests to be eligible to participate in the comprehensive final exam. The final exam will replace the lowest test score if it is better.

FINAL EXAM: A comprehensive final exam will be given on Monday, April 27, 2015, 12 noon-1:50 pm.

GRADES:

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<th>Tests</th>
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<td>HW/ Quizzes</td>
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<td>Final</td>
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Grading Scale (approximate)

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<td>A –</td>
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<td>B +</td>
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<td>B</td>
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EXTRA HELP:

- **My office:** during regular office hours or by appointments.
- **Mathematics Tutor Lab:** West Science 3810. Mathematics Tutor Lab is open M – R 9:00 am – 4:00 pm and F 9:00 am – 3:00 pm.
- **All Campus Tutoring:** Learning Resource Center 111H. All Campus Tutoring is open S – W 2:00 pm – 10:00 pm.
- **Disability Service Office:** If you have a need for disability-related accommodations or service, please inform the Coordinator of Disability Service in the Disability Service Office by either coming into the office at 2001 C.S. Hedgcock, or calling 227 – 1700, e-mailing disserv@nm.edu. Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state and university guidelines.

ATTENDANCE: Required. At most five unexcused cuts are permitted. For “Each day you miss, it takes one day longer to be good”.—Ben Hogan, Golfer

CALCULATOR: TI Interactive graphic software can be loaded to your ThinkPad for free at the Help Desk in LRC. Many of you have probably used graphing calculators in the past and you may already have your own calculator. If you have a graphing calculator, you should bring it to class since it is much more convenient than a laptop.

CODE OF CONDUCT: Since every student is entitled to full participation in class without interruption, all students are expected to be in class and prepared to begin on time. If for some emergency reason you are late, you must quietly enter the classroom and find a seat at the back row. All pagers, wireless phones or other devices that make noise must be turned off when you enter the classroom. Disruption of class, whether by talking, noisy devices, eating in class or other inconsiderate behavior, will not be tolerated. Students who violate these rules will be asked to leave the classroom and will not be allowed to return until they have spoken privately with the instructor.
Course Content

(The numbers below do not necessarily correspond to the chapters in the textbook)

1. Review of Algebra
   a. Polynomials and rational expressions
   b. Solving equations and inequalities
   c. Exponents and radicals
2. Linear Functions
   a. Equations of lines
   b. Functional notation and definitions
   c. Linear functions and models
   d. Math models and curve fitting
3. Matrices
   a. Definitions and applications for matrices
   b. Solving systems of equations using matrices
   c. Operations with matrices and finding inverses
   d. Modeling and solving problems using matrices
4. Linear Programming
   a. Graphing linear inequalities
   b. Solving linear programming problems graphically
   c. Modeling and solving linear programming applications
5. Finance
   a. Simple and compound interest
   b. Geometric sequences and annuities
   c. Loans and amortization
   d. Present value of future money
6. Probability
   a. Notation, Venn diagrams, counting techniques
   b. Probability of simple and compound events
   c. Conditional probability
   d. Bernoulli trials
   e. Probability distributions of random variables; means (or expected values)
7. Introductory Statistics
   a. Graphical representations of data-sets, frequency tables
   b. Numerical summaries of data-sets
Ten Ways to Survive the Math Blues

1. **Figure out the Big Picture:** Find out why you are doing this math. How does it fit with your other courses (science, geography, English, engineering)? You could do some Internet searches on the math you are studying and include "application". Get a sense of where you are going and why you are doing this. Mathematics is compulsory in most of the world – there has to be a reason…

2. **Get on top of it before it gets on top of you.** Yep, mathematics is one of those things that builds on prior knowledge. Yet many students learn things only for an examination and then promptly forget it, setting themselves up for later difficulties. Learn for the future, not for tomorrow’s test.

3. **Read Ahead.** It is strongly advised that you read over next week’s math right now. You won’t understand it all, but you will have a better sense of what is coming up and how it fits with what you are doing this week. Then, when your class goes through it later, your doubts and uncertainties will reduce – and you will understand and remember it better.

4. **Use more than one resource.** It often happens that you can’t follow the teacher’s explanation and your textbook is very confusing. Borrow 2 or 3 textbooks similar to your own from your library and read what they have to say about the topic. Often they will have a diagram, a picture or an explanation that gives you the "Ahhh – I get it!" that you desire.

5. **Don’t join the Blame Game.** Teaching mathematics is tough. Teachers really have to work hard to make math fun, interesting and engaging. It is easy to blame a teacher for a bad grade, but who is really responsible for your future?

6. **Practice makes Perfect.** You don’t expect to be able to play guitar or drive a car without practice. Well, learning mathematics (unfortunately) involves some slogging away and doing exercises. Don’t get bogged down, though – use your other resources to help you through the homework.

7. **Time Management.** Start homework assignments as soon as you get them. There may be some things on there that you haven’t done in class yet (because maybe it is not due for a few weeks). That’s good – it helps to focus your thoughts so that when you are doing that section in class, you know that it is important and you’ll know what you don’t know. Nobody plans to fail – but many fail to plan…

8. **Don’t fall into the trap of copying from a friend to survive.** They probably have the wrong answer anyway. Besides, a lot of students resent being asked for their assignments for copying – they are too afraid of a ruined relationship to say no. Hey, you can do it – have the confidence in your own ability.

9. **Never, never give up.** Math uses a different part of the brain than most other things in school. It can be stressful when you can’t figure out something. Work on something else for a while and come back to it later.

10. **Keep a sense of humour!** Don’t lose the ability to laugh at yourself and your own mistakes. Mistakes are not the end of the world – they are the beginning of real learning!