Survey of Mathematical Ideas
Fall 2014
MATH 100.02 (3 credits), Tu_Th, 9:30A-10:45A, Roddy 261

Prerequisites: A grade of C- or better in MATH 090 (*Basic Mathematics*) or mathematics placement (MPT 100 or MPT 102) is the prerequisite for this course.[1]

Instructor: Dr. Buchanan
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Office Hours: 10:00A-10:50A (MWF), 1:00P-1:50P (TuTh), or by appointment
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A special office hour for MATH 100 will be held every Tuesday in Roddy 261 from 11:00-11:50A.

Electronic Textbook: *Mathematical Ideas*, 12th edition, Charles D. Miller, Vern E. Heeren, John Hornsby, Addison Wesley, Inc., Boston, (2012), ISBN 978–0321199911.

The ISBN above refers to the access code for the electronic textbook and access to MyMathLab. You will also need an i>clicker2 remote and a basic scientific calculator such as the TI-30X IIS or similar calculator.

Objectives: Upon successful completion of this course the student will:

- Identify and apply appropriate problem-solving strategies.
- Analyze the validity of an argument.
- Count and do arithmetic in ancient Egyptian, and other numeration systems.
- Count and do arithmetic in numeration systems with arbitrary bases.
- Code and decode numeric and alphanumeric data in binary.
- Understand the basic principles of number theory and properties of the Fibonacci sequence.
- Apply the principles of present and future value of money to situations involving investment and credit.
- Understand the time value of money, principles of borrowing, lending, and investing.
- Apply counting principles.
- Understand the basic principles of probability and be able to compute probabilities.

Course Contents: Textbook chapters and topics covered during this class may include:

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[1]MATH 100 and MATH 102 may not both be taken for general education credit.

- The Art of Problem Solving (Chap. 1)
- The Basic Concepts of Set Theory (Chap. 2)
- Introduction to Logic (Chap. 3)
- Numeration and Mathematical Systems (Chap. 4)
- Number Theory (Chap. 5)
- Personal Financial Management (Chap. 14)
- Counting Methods (Chap. 11)
- Probability (Chap. 12)

The table below gives a tentative schedule of topic coverage by date and textbook section number. Adjustments to this schedule may be necessary depending on student interest and preparation for moving forward.

Tuesday	Thursday
08/26: 1.1	08/28: 1.2, 1.3
09/02: 2.1	09/04: 2.2
09/09: 2.3	09/11: 2.4
09/16: **Test 1**	09/18: 3.1, 3.2
09/23: 3.3	09/25: 3.4
09/30: 3.5, 3.6	10/02: 4.1, 4.2
10/07: 4.3	10/09: **Test 2**
10/14: **Fall Break**	10/16: 5.1
10/21: 5.2	10/23: 5.3
10/28: 5.4	10/30: 14.1
11/04: 14.2	11/06: 14.3
11/11: 14.4	11/13: **Test 3**
11/18: 11.1	11/20: 11.2, 11.3
11/25: 11.4	11/27: **Holiday**
12/02: 11.5	12/04: 12.1, 12.2

Attendance: Students are expected to attend all class meetings and to participate in the learning and assessment process. Merely attending class will not earn you a passing grade. Regular class attendance (see University Attendance Policy) includes being on time to class and actively engaging and participating in classroom activities. It does not include texting, listening to personal music players, browsing the internet, playing video games, checking email, *etc.* Students engaging in these types of activities may be asked to leave the classroom and/or may lose 10% of their final class participation points per offense. Do not expect a warning or announcement of these sanctions. If you cannot regularly attend class due to a time conflict with another class or activity, you should wait until a later semester to take this course. If you must be absent from class you are expected to keep up with the course materials covered and homework assigned during your absence. After each class meeting, copies of the materials presented in

class will be available through the online component of this course. You will not be able to make up the missed class participation component of your absence. Students who miss a test should provide a valid excuse, otherwise you will not be allowed to make up the test. Tests should be made up within one week of their scheduled date.

Personal Response System: During each class meeting 5-15 questions will be presented for the students to answer using the i>clicker2 remote. The questions will be a mixture of multiple choice, true/false, alphanumeric, and numeric answer formats and will count for 15% of the students' course grades. Each student is required to have their own i>clicker2 remote and must bring it to each class meeting.[2] If you purchased the textbook bundle from the university bookstore, you should have received an i>clicker2 as part of the bundle. Otherwise you may purchase one online. The ISBN for the i>clicker2 is 978-1429280471. If you forget to bring your personal response remote to a class meeting or if your remote is not functioning, you will not receive class participation credit for that day's class. At the end of the semester I will drop each student's three lowest class participation grades.

Bringing a fellow student's i>clicker2 to class will be considered cheating. If you are found to have a remote other than your own or to have submitted responses via a remote in a class you did not attend, you will lose all the class participation points for that class.

Homework: Students are expected to do their homework and participate in class. The homework is your opportunity to determine if you understand the material covered in class. The homework assignments will also reinforce and extend the classroom material covered. At the end of each classroom lesson, a list of exercises will be presented. These **graded homework exercises** (25% of the course grade) will be handled through the mymathlab.com website. Students purchasing the access code for mymathlab.com will have access to the online homework as well as the electronic textbook and other ancillary course materials. If you did not receive the access code, or if you purchased a used paper book without the access code, you may purchase the code online when you register with the website. To register you will need:

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If you have not purchased the access code, you may still register with mymathlab.com and receive approximately two weeks of free access. Prior to the end of the free access period you must purchase and register the access code.

Students should expect to spend a *minimum* of six hours per week reviewing notes taken during class and working assigned homework exercises. Assignments will be available at the mymathlab.com website. Homework exercises assigned at the end of

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[2]The first generation i>clicker cannot be used in this course.

Tuesday classes will be due on Friday of the same week. Homework exercises assigned at the end of Thursday classes will be due on Monday of the following week. Students are strongly encouraged to start working on the homework assignments as soon as material has been covered in class. No extensions to the due dates for the homework assignments will be granted. Unscheduled events such as computer breakdowns, viruses, network outages, the unavailability of mymathlab.com, *etc.*, can occur with little notice so the earlier you complete your homework assignments, the less you are likely to be affected by these problems. You may access mymathlab.com from your own computer or from any computer in the campus computer labs. Do not expect to be able to complete the homework assignments in the hour before the deadlines.

Tests: There will be three in-class tests and a final exam given during the semester. These tests will be given in pencil and paper format.

Test 1	September 16, 2014
Test 2	October 09, 2014
Test 3	November 13, 2014
Exam	December 10, 2014 from 2:45P-4:45P

If you are unable for any reason (illness, family emergency, military commitment, *etc.*) to take the tests at these times you must notify me before the test is given. A make-up test will be scheduled at a mutually convenient time.

I will not "curve" test grades. If you feel that an error was made in the grading of a test, you should explain the error on a separate sheet of paper and return both it and the test to me within three class periods after the test is returned to you. In no case will adjustments amounting to less than 3 points be made. After three class periods, changes to graded material will be made at the instructor's discretion.

Grades: Course grade will be calculated as follows.

Homework	25%
Class participation	15%
Tests	60%

I keep a record of students' test, homework, and class participation scores. Students should also keep a record of graded tests and other materials. As an example of the calculation of the numerical course grade, suppose a student's three test grades were 87, 78, and 65 (out of a maximum of 100 points on each test), the student's class participation grade is 81 out of 100, and the student's homework grade was 354 out of 400. This hypothetical student's numerical course grade would be calculated according to the formula

$$
\begin{aligned}
\frac{87 + 78 + 65}{3} \cdot (0.60) + \frac{81}{100} \cdot (15) + \frac{354}{400} \cdot (25) &= 46 + 12.15 + 22.125 \\
&= 80.275
\end{aligned}
$$

I will not "curve" course grades. There will be no extra credit assignments during the semester. Therefore students should take all assignments seriously from the beginning of the semester.

Course grades will be assigned according to the following scale.

90-92	A−	93-100	A		
80-82	B−	83-86	B	87-89	B+
70-72	C−	73-76	C	77-79	C+
60-62	D−	63-66	D	67-69	D+
		0-59	F		

Course Repeat Policy: An undergraduate student may not take an undergraduate course of record more than three times. A course of record is defined as a course in which a student receives a grade of A, B, C, D, (including + and −) F, U, Z or W. The academic department offering a course may drop a student from a course if the student attempts to take a course more than three times.[3] If this is your fourth or greater attempt to complete this course, you may appeal this policy to the chair of the Department of Mathematics.

The last day to withdraw from a course (and receive the W grade) is October 31, 2014.

Inclement Weather Policy: If we should miss a class day due to a school closing because of weather, any activities planned for that missed day will take place the next time the class meets. For example, if a test is scheduled for a day that class is canceled on account of snow, the test will be given the next time the class meets.

Final Word: Mathematics is not a spectator sport. What you learn from this course and your final grade depend mainly on the amount of work you put forth. Daily contact with the material through homework assignments and review of notes taken during lectures is extremely important.

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[3]Memorandum to mathematics faculty from Dr. Charles G. Denlinger, Assistant Chair, Department of Mathematics, August 30, 2004.