Survey of Mathematical Ideas
Summer Session 2, 2011
MATH 100.01 (3 credits), MTWTF, 1:00P-2:35P, Wickersham 219

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

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Office Hours: 10:15A-11:00A, 2:45P-3:30P (MTWTF), or by appointment
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Course URL: http://banach.millersville.edu/~bob/math100/

Textbook: *Mathematical Ideas*, expanded 11th edition, Charles D. Miller, Vern E. Heeren, John Hornsby, Margaret L. Morrow, and Jill Van Newenhizen, Pearson Education, Inc., Boston, (2008), ISBN 978–0–321–36146–2.

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 Chinese 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 counting principles.
- Understand the basic principles of probability and be able to compute probabilities.
- Compute statistical measures of central tendency and dispersion.
- Understand the time value of money, principles of borrowing, lending, and investing.
- Conduct elections and apportionments by various methods and understand their limitations.

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

- 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)
- Counting Methods (Chap. 11)
- Probability (Chap. 12)
- Statistics (Chap. 13)
- Personal Financial Management (Chap. 14)
- Voting and Apportionment (Chap. 16)

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.

06/13: 1.1, 1.2	06/14: 1.3, 2.1	06/15: 2.2, 2.3	06/16: 2.4, 2.5	06/17: 3.1, 3.2
06/20: 3.3, 3.4	06/21: 3.5, 3.6	06/22: 4.1, 4.2	06/23: 4.3, 5.1	06/24: 5.2, 5.3
06/27: 5.4, 11.1	06/28: 11.2, 11.3	06/29: 11.4, 11.5	06/30: 12.1, 12.2	07/01: 12.3, 12.4
07/04: **Holiday**	07/05: 12.5, 13.1	07/06: 13.2, 13.3	07/07: 13.4, 13.5	07/08: 14.1, 14.2
07/11: 14.3, 14.4	07/12: 14.5, 16.1	07/13: 16.2, 16.3	07/14: 16.4	07/15: Wrap-up

Attendance: Due to the compressed schedule of the summer session, regular attendance is essential. Students are expected to attend all class meetings; however, merely attending class will not earn you a passing grade. 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 complete class requirements (*e.g.* homework assignments) prior to the 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.

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 lesson, a list of textbook exercises will be presented. These exercises are intended as practice, but will not be graded. **Graded homework** (20% of the course grade) will be handled through the coursecompass.com website. Students purchasing a new textbook should have received an access code for coursecompass.com. If you did not, or if you purchased a used book without the access code, you may purchase the code online when you register with the website. To register you will need:

Course Name: Survey of Mathematical Ideas

Course ID: buchanan99214

Students should expect to spend a *minimum* of ten hours per week reviewing notes taken during class and working assigned homework exercises. There will be one graded homework assignment per week. Assignments will be available at the coursecompass.com website several days before the due dates listed below. Students are strongly encouraged to start working on the homework assignments as soon as material has been covered in class. Do not expect to be able to complete the homework assignments in the hour before the deadlines.

Sections	**Due Date**
1.1–1.3, 2.1–2.5	June 16, 2011
3.1–3.6, 4.1–4.3	June 24, 2011
5.1–5.4, 11.1–11.5	June 30, 2011
12.1–12.5, 13.1–13.3	July 7, 2011
13.4–13.5, 14.1–14.5	July 13, 2011

Tests: There will be four online tests given during the summer session. You should work alone on these online tests, though you may use your textbook and notes. Students working together on a test will receive no credit for the test. The tests will be made available through the coursecompass.com website on the schedule in the table below.

	Distributed	**Deadline**
Test 1	June 17, 2011	June 20, 2011
Test 2	June 28, 2011	June 30, 2011
Test 3	July 8, 2011	July 10, 2011
Test 4	July 15, 2011	July 17, 2011

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	20%
Tests	80%

I keep a record of students' test and exam 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 four test grades were 87, 78, 65, and 70 (out of a

maximum of 100 points on each test), the student's homework grade was 71 (again, out of a maximum of 100). This hypothetical student's numerical course grade would be calculated according to the formula

$$\begin{aligned} \frac{87+78+65+70}{4} \cdot 0.80 + 71 \cdot 0.20 &= 60.00 + 14.20 \\ &= 74.20 \end{aligned}$$

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.[1]

The last day to withdraw from a course (and receive the W grade) is July 5, 2011.

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.

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