

**Math 102**  
**Introduction to Mathematics**  
**Spring 2010 Syllabus** Section 001267

*Instructor:* Dr. Tim Harms  
*Office Phone:* 477-4016  
*e-mail:* [harms@mnstate.edu](mailto:harms@mnstate.edu)

*Office:* MacLean 375H  
*Office hrs:* M, W, F 8:30 - 10:20 & 11:30 - 12:20; T 11:00 - 12:00

*Web page:* <http://www.mnstate.edu/harms> Select the Math 102 link

**Required Text & Supplement:**

Text: Mathematics All Around, Pirnot, T., Pearson Addison Wesley Publications, Customized version of the 3<sup>rd</sup> Edition. 2007.

**Required Supplies:**

Three ring binder, scientific calculator, & pencil

**Prerequisites**

Students are required to have an ACT math score of 19 or higher or a score of 75.5 or higher on the Accuplacer math placement test. Students who do not meet these criteria should take and pass the math development class MDEV 102 prior to taking Math 102. Transfer students should contact their instructor at the start of the semester if they are questioning their placement in this course.

**Course Description:**

Logic, sets, probability and statistics, problem solving strategies

**Goal:**

Increase students' knowledge about mathematical and logical modes of thinking. This will enable students to appreciate the breadth of applications of mathematics, evaluate arguments, and detect fallacious reasoning. Students will learn to apply how mathematics, logic and statistics in making decisions concerning their lives and careers.

**Student Competencies**

**Students will be able to:**

1. Solve real-life problems using mathematics/logic systems.
2. Express mathematical/logical ideas clearly in writing.
3. Organize, display, analyze information and understand methods of data collection.
4. Explain what constitutes a valid mathematical/logical argument (proof).
5. Apply a variety of higher-order problems-solving and modeling strategies.
6. Exhibit mastery of computational skills and the ability to make reasonable estimates.

**Student Expectations**

- Please be courteous to others. TURN OFF all cell phones before class begins. If you are expecting an emergency message and your phone must be left on during class inform Professor Harms before class begins. If a cell phone disrupts class, I reserve the right to remove the disruptive student from the class session.
- Students will act in an honest and trustworthy manner. Cheating is defined as part of the Student Code of Conduct in the Student Handbook at <http://www.mnstate.edu/sthandbook/scc/definitions.cfm>  
An explanation is at <http://www.mnstate.edu/gracyk/expectations%20of%20students/don%27t%20do%20it.htm>

## Learning Outcomes:

### Students will:

1. Determine whether arguments are valid.
2. Solve real-life problems by using the principles of set theory.
3. Make decisions regarding the possible events that are governed at least in part by chance.
4. Apply the basic concepts of statistics, such as collecting data; drawing graphs; finding measures of average, variation, and position; and solving problems using the standard normal distribution.
5. Demonstrate understanding of select concepts in logic, set theory, probability, and statistics by solving a real-life problem and communicating their work to the class orally and/or in writing.

### Attendance Policy:

For an absence due to personal reasons such as illness or family emergencies, you should notify Professor Harms via email or phone before the absence whenever possible. In order for a makeup exam/quiz written documentation of the reason for the absence will be required. Examples are: a note from the doctor saying you were seen (it does not have to say what you were seen for), a copy of the police report for a minor car accident, funeral program or obituary, etc. Makeup for start-up homework must be done by meeting with Professor Harms during office hours within 47 hours of missed class.

Absences due to family vacations, reunions, weddings, etc., are not excused absences. Unexcused absences require work to be completed prior to your absence for credit on homework, quizzes, or exams missed. If homework, quizzes, and exams are missed because of unexcused absences and arrangements are not made prior to due/scheduled date then no credit will be earned.

### Evaluation:

- Weekly Labs worth 7-10 points each
- Start-up Homework Questions worth 3 points each
- Quizzes worth 10-20 pts each
- Two Projects worth 25 points each
- Three 100 point Exams:
  - Exam 1 on Chapter 1-Sets on **Jan. 29<sup>th</sup>**
  - Exam 2 Chapter 2-Logic & Sets on **Feb. 19<sup>th</sup>**
  - Exam 3 on Chapter 12-Counting, Chapter 13-Probability, Logic & Sets on **March 31<sup>st</sup>**
- Last Unit Chap. 14-Statistics & Chap. 6-Algebraic Models
- Comprehensive Final Exam worth 200 pts on **May 6<sup>th</sup> at NOON**

### Grading Scale:

-98 A+; 97-93 A; 92-90 A-  
89-88 B+; 87-83 B; 82-80 B-  
79-78 C+; 77-73 C; 72-70 C-  
69-68 D+; 67-63 D; 62-60 D-  
59%- F

### Assistance Available:

If you are having trouble please see Dr. Harms during office hours. If you fail an exam you will be asked to schedule a meeting outside of class with Professor Harms to identify recommended changes in study habits. A math tutor is available for drop in tutoring in MacLean 383 Mon. - Thur. from 9:00 – 4:00 & Friday 9-1. Math tutors will also be available in MacLean 278, those \* will be meeting in MacLean 276

- Monday 9:30-11:30, 1:30-2:30
- Tuesday 9:30-11:30, 2:30-4:30
- Wednesday 9:30-1:30\*, 2:30-7:30
- Thursday 9:30-11:30, 1:30-7:30
- Friday 9:30-11:30

## Class Schedule

Week 1 Sections 1.3-1.4 (Drop/Add deadline Jan. 15<sup>th</sup>)  
Week 2 Section 1.5  
Week 3 Section 1.6 **Exam 1** over Chapter 1  
Week 4 Sections 2.1-2.3  
Week 5 Sections 2.4-2.5  
Week 6 Sections 2.6 **Exam 2** over Chapters 1-2  
Week 7 Sections 12.1-12.2  
Week 8 Sections 12.3- Further Interest, 13.1  
Week 9 Sections 13.2-3  
Week 10 Sections 13.4- Further Int., Probability Project  
Week 11 Sections **Exam 3**  
Week 12 Sections 14.1-2 (Withdrawal deadline April 7<sup>th</sup>)  
Week 13 Sections 14.3-14.4  
Week 14 Sections 6.1- 6.2  
Week 15 Sections -Chap 14 Further Int. & Statistics Project  
Week 16 Review and Final Exam

<u>Section</u>	<u>Topic</u>
1.1	Problem Solving
1.2	Estimation
1.3	Language of Sets
1.4	Comparing Sets
1.5	Set Operations
1.6	Survey Problems
2.1	Inductive and Deductive Reasoning
2.2	Statements, Connectives, and Quantifiers
2.3	Truth Tables
2.4	Conditional and Biconditional
2.5	Verifying Arguments
2.6	Verifying Syllogisms
12.1	Introduction to Counting Methods
12.2	The Fundamental Counting Principle
12.3	Permutations and Combinations
Further Interest	Counting, etc.
13.1	Basics of Probability Theory
13.2	Complements and Unions of Events
13.3	Conditional Probability and Intersections of Events
13.4	Expected Values
Further Interest	Binomial Experiments
14.1	Organizing and Visualizing Data
14.2	Measures of Central Tendency
14.3	Measures of Dispersion
14.4	Normal Distributions
6.1	Linear Equations
6.2	Modeling with Linear Equations
Further Interest	Linear Correlation and Regression

### **Special Accommodations:**

Students with disabilities who believe they may need an accommodation in this class are encouraged to contact Greg Toutges, Coordinator of Disability Services at 477-5859 (Voice) or 1-800-627-3529 (MRS/TTY), CMU 114 as soon as possible to ensure that accommodations are implemented in a timely fashion.