

## Math 010 Intermediate Algebra

## Course Syllabus

*This document is provided as an example of a course syllabus. A current course syllabus may not reflect the same course structure, specific text assignments or grading assessments.*

### General Information:

**Instructor:** Dr. Bettyann Daley  
**Office:** 405 EWG  
**Office Phone:** 831-1573  
**E-mail address:** daley@math.udel.edu  
**Office hours:** To be announced.

This course is designed to prepare students for Precalculus, either Math 117 or Math 115. We begin with a **brief** review of basic algebra and problem solving including a review of solving linear equations, performing operations with real numbers (including fractions) and properties of integral exponents. The next chapter explores graphing on the coordinate plane, functions and lines. Next we study systems of linear equations and inequalities. Polynomials and operations with polynomials are discussed with an emphasis on factoring. Operations with rational expressions and equations and operations with radicals are the next major topics. Finally, we cover quadratic equations and functions and their graphs.

This is an intensive course for students who may have several gaps in their mathematical background or have not seen algebra in a number of years. Some students may have concerns about whether this course is too "easy" since many course topics seem familiar. However, you should keep in mind the following observations:

- The mathematical topics are discussed at a very challenging level in this course and needed for precalculus. Many students indicate the level of expectation is much higher than in high school algebra courses.
- The placement process indicates you have some gaps in your understanding. I encourage you to take your placement results seriously and do not overestimate your mathematical knowledge.
- Many difficulties students experience in precalculus *and* calculus are a result of a deficient algebra background.

If you still have concerns, please come and discuss them with me and your advisor.

**Remember: This course is a NON-COLLEGE CREDIT course. Please check with your advisor, but for most students this course grade will not count in your cumulative grade point average but does appear on your transcript.**

### General Education Goals:

This course is designed to prepare students for any one-hundred level mathematics course as well as provide the mathematical skills needed for many areas of study. It fulfills the University of Delaware's General Education Goal 1 with a focus on quantitative literacy. It also strives to fulfill Education Goals 2 (solving problems), 6 (intellectual curiosity and engagement), 7 (extending knowledge beyond the boundaries of the classroom), and 8 (appreciation of human creativity). In addition, it provides mathematical instruction to a diverse group of students as part of the Department's mission statement.

**Course materials:**

You will need to purchase the following:

- **Intermediate Algebra** by Miller, O'Neill and Hyde, second edition, McGraw Hill
- **MathZone Software** (either purchased with the textbook or purchased separately).
- Scientific calculator.
- Graph paper and ruler.
- A binder (or two) with lots of loose leaf paper! One is for your lecture notes and the other is for problems from both the text and Math Zone.

**Course grade:**

Your course grade will be based upon the number of points you accumulate by completing the following three types of class activities as well as your class attendance record. The maximum number of points is 1000.

<b>Activity</b>	<b>Points</b>
<b>Three Exams (Exam 1: 150, Exams 2 &amp; 3: 175 points each)</b>	<b>500 points</b>
<b>Homework Assignments and other activities submitted through MathZone</b>	<b>100 points</b>
<b>Quizzes or other activities</b>	<b>150 points</b>
<b>Final Exam</b>	<b>250 points</b>
<b>Total</b>	<b>1000 points</b>

Note: The final exam percentage score will replace your lowest exam percentage score if the final exam percentage score is higher than your lowest exam percentage score for those students who have taken all three exams. There will be no grade replacement for an unexcused absence from an exam.

Grades are assigned as follows:

A	895-1000	A-	865-894	B+	835-864	B	795-834
B-	765-794	C+	735-764	C	695-734	C-	665-694
D+	635-664	D	595-634	D-	566-594	F	Below 566

**Attendance:**

Attendance is very important to your success in this course. Students who attend, participate in class and complete homework in a timely manner almost always do well in the course. Attending class provides practice on the skills and concepts as well as problem-solving strategies. Since this is so important to your success, I have an attendance policy: ***If you have six or more unexcused class absences, your final course grade could be lowered by a +/- letter***

**grade.** If you find you are not feeling well or have some personal obligation and cannot make class, you will need to inform me through email. These types of absences will count as part of the six unexcused absences unless you discuss it with me.

Whether an excused absence or unexcused, you are still responsible for completing the homework on the due date and getting class announcements and notes from another student. It is very important you have all class announcements in case a quiz or exam is announced and have copies of all handouts.

### **Exam Policies:**

Please make every effort to take the exams as scheduled. I will announce an exam about a week in advance in class. For all exams, everyone must bring a pencil and a working calculator. If you have an excused absence from an exam, you must notify me either by email or voice mail within two days of the exam. If you are participating in a University sponsored event (i.e. athletic game) or have another pre-arranged excused absence, you must notify me before the exam.

All students are expected to attend the final exam as scheduled during finals week. Please do not make any travel arrangements that conflict with your final exam schedule.

### **Academic Dishonesty**

The following statement was taken from the Student Guide to University Policies:

*All students must be honest and forthright in their academic studies. To falsify the results of one's research, to steal the words or ideas of another, to cheat on an assignment, or to allow or assist another to commit these acts corrupts the educational process. Students are expected to do their own work and neither give or receive unauthorized assistance.*

*Any violation of this standard must be reported to the Office of Judicial Affairs. The faculty member, in consultation with a representative from the Office of Judicial Affairs, will decide whether the matter should be adjudicated through the Student Judicial System or resolved without a formal judicial hearing.*

Further information can be found at [www.udel.edu/stuguide/06-07/code.html#honesty](http://www.udel.edu/stuguide/06-07/code.html#honesty). If you observe or know of someone who is in violation, please let me know. If there are any questions concerning working with another student, please ask. All of us are responsible for maintaining an academic environment that encourages a fair assessment of learning.

### **Assignments:**

Learning and understanding mathematics requires discussion and lots of practice. During class, we will discuss the ideas and do a bit of practice. But there is not enough time in class to practice all the required skills. ***You must be prepared to spend at least 5 hours per week or more working problems outside of class.***

Practice problems will come from two sources – the textbook and MathZone. Organizing your assignments and lecture notes in a binder on loose leaf paper will provide an invaluable resource. The assignments - both textbook and problems copied from Math Zone – should be

kept organized with solutions to these problems carefully written out.

You should organize your lecture notes in a separate section in this binder or in another binder so you have an important source of the exam problems. Class time will be devoted to discussion of algebraic methods and problems and your notes should reflect these discussions. Your lecture notes should include all examples, formulas, ideas, and general strategies discussed in class.

### **Textbook Problem Assignments**

Each assignment is due the class after the section is covered in class. MathZone due dates refer to the MathZone assignments. You must “***SUBMIT***” the MathZone assignment on or before the due date.

### **Chapter 1: Review of Basic Algebraic Concepts**

**TENTATIVE MATHZONE DUE DATE: 9/11**

<b>Textbook Section</b>	<b>Topic</b>	<b>Textbook Problems (similar to required MathZone Problems)</b>
1.1	Sets of Numbers and Interval Notation	1, 2, 11, 13, 17, 19, 21, 23, 25, 27, 31, 33, 41, 43, 55, 57, 59, 61, 73, 75, 79, 83, 85, 87, 89
1.2	Operations on Real Numbers	1, 2, 13, 15, 17, 33, 35, 39, 41 - 43, 53, 57, 59, 61, 65, 75, 77, 81, 82, 85, 92, 97, 99, 100, 101, 105
1.3	Simplifying Expressions	1, 2, 9, 11, 29, 35, 39, 41, 43, 47, 53, 55, 59
1.4	Linear Equations in One Variable	1, 2, 19, 21, 33, 35 – 43 odd, 47, 49, 51, 59, 60, 61, 69, 73, 75, 79 – 87 odd
1.5	Application of Linear Equations in One Variable	1, 2, 13, 15, 17, 19, 23, 25 – 29 odd, 33 – 41 odd, 45, 47, 49, 50, 51, 53 – 55, 57
1.6	Literal Equations and Applications to Geometry	1, 6, 7, 9, 10, 11, 15, 19 - 25 odd, 26 – 29, 31, 35, 44, 45, 47, 49 - 57 odd, 65, 66 – 71
1.7	Linear Inequalities in One Variable	1, 2, 13, 15, 17, 21, 23, 25, 29, 35 – 45 odd, 49, 51, 55, 59, 63, 65, 67, 69, 71, 73
1.8	Properties of Integer Exponents and Scientific Notation	1, 17, 18, 19 – 75 odd, 79, 83, 85, 95, 101, 105
Chapter 1	<b>REVIEW</b>	10, 14 – 18, 27 – 31, 34, 37, 41, 42, 45, 46, 48, 51 – 58, 61, 63 – 67, 69 – 96, 98, 101
Chapter 1	<b>TEST</b>	1 – 4, 6, 9, 10 – 30

**Chapter 2: Linear Equations in Two Variables**  
**TENTATIVE MATHZONE DUE DATE: 9/18**

<b>Textbook Section</b>	<b>Topic</b>	<b>Textbook Problems (similar to required MathZone Problems)</b>
2.1	The Rectangular Coordinate System and Midpoint Formula	1 – 5, 7 – 9, 13, 15, 19, 21, 27, 29
2.2	Linear Equations in Two Variables	1, 2, 7, 9, 11, 12, 15, 19, 21, 23, 25, 29, 30, 31, 33, 35, 37, 39, 43, 45, 47, 49, 51, 53, 55
2.3	Slope of a Line	1, 2, 9, 11 – 13, 15, 17, 19, 29, 30, 31, 33, 35, 37, 38, 39, 41, 43, 45, 51, 53, 54, 55, 57, 59, 61
2.4	Equations of a Line	1, 2, 3, 9, 13, 15, 18 – 23, 27, 29, 32, 33, 35, 39, 41 – 87odd
2.5	Applications of Linear Equations and Graphing	1, 7, 9, 13, 15, 17, 18
Chapter 2	<b>REVIEW</b>	1, 2, 5 – 10, 12, 19, 20 – 31, 34
Chapter 2	<b>TEST</b>	1 – 21
Chapter 1-2	<b>CUMULATIVE REVIEW</b>	1 – 20

**Chapter 3: Systems of Linear Equations**  
**TENTATIVE MATHZONE DUE DATE: 9/25**

<b>Textbook Section</b>	<b>Topic</b>	<b>Textbook Problems (similar to required MathZone Problems)</b>
3.1	Solving Systems of Linear Equations by Graphing	1, 2, 3, 7, 9, 11, 13, 15, 17, 23, 27, 33 – 36
3.2	Solving Systems of Equations by Using the Substitution Method	1, 9, 13, 15, 17 – 19, 21, 23, 25 – 29, 33, 35, 39, 45
3.3	Solving Systems of Equations by Using the Addition Method	1, 5, 9, 13, 15, 17, 21, 23, 24, 27, 29, 33, 35, 39, 41, 47, 49
3.4	Applications of Systems of Linear Equations in Two Variables	1, 2, 7, 9, 11, 13, 15 – 17, 19, 21 – 25, 29, 31, 33, 35, 37, 38, 39, 41, 45, 46
Chapter 3	<b>REVIEW</b>	2, 3, 4, 6, 7, 11, 13, 15, 19, 22 – 26
Chapter 3	<b>TEST</b>	2, 3, 4, 5 – 12, 15, 16
Chapter 1-3	<b>CUMULATIVE REVIEW</b>	1 – 11, 13

**Chapter 4: Introduction to Relations and Functions**  
**TENTATIVE MATHZONE DUE DATE: 10/2**

<b>Textbook Section</b>	<b>Topic</b>	<b>Textbook Problems (similar to required MathZone Problems)</b>
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4.1	Introduction to Relations	1, 2, 3, 5, 7, 9, 11 – 23 odd, 25, 27, 31, 33
4.2	Introduction to Functions	1, 5, 7, 9, 11, 13, 15, 16, 17 – 27 odd, 31, 37, 38, 39, 41, 43, 45, 49, 51, 55, 57, 59, 83, 86 – 95.
Chapter 4	<b>REVIEW</b>	1 – 14, 17 – 28, 30, 35 – 43, 46, 47
Chapter 4	<b>TEST</b>	1 – 9, 11 – 20, 24 – 28
Chapter 4	<b>CUMULATIVE REVIEW</b>	1 – 8, 10 – 19

### Chapter 5: Polynomials

TENTATIVE MATHZONE DUE DATE: 10/16

Textbook Section	Topic	Textbook Problems (similar to required MathZone Problems)
5.1	Addition and Subtraction of Polynomials and Polynomial Functions	1, 2, 3, 5, 7, 11, 13, 25, 29, 31, 33, 35, 39, 41, 47, 53, 57, 59, 63, 65, 67, 71, 73, 77, 78, 79, 81, 84
5.2	Multiplication of Polynomials	1, 15, 19, 23, 27, 29, 31, 35, 43, 47, 49, 53, 55, 57, 61, 63, 65, 75, 77, 83, 85, 95, 96, 97, 98, 99, 101, 103, 105, 107, 111, 113
5.3	Division of Polynomials	1, 9, 10, 11, 13, 19, 21, 25, 27, 31, 35, 37, 39, 43, 45, 48, 49, 51, 53, 57, 59, 63, 65, 71
Chapter 5	Problem Recognition	1 – 24, 27, 30
5.4	Greatest Common Factor and Factoring by Grouping	1, 9, 10, 11, 13, 15, 23, 27, 29, 31, 33, 39 – 44, 48, 49, 51, 53, 55, 57, 59, 65, 67, 69, 71, 75, 79
5.5	Factoring Trinomials	1, 2, 11, 17, 19, 23, 25, 27, 35, 37, 43, 47, 51, 53, 55, 59, 63, 67 – 87 odd, 97
5.6	Factoring Binomials	1, 2, 11, 12, 13 – 27 odd, 31, 32, 33, 35, 37, 39, 43 – 59 odd, 67, 79, 81, 83, 86
5.7	Additional Factoring Strategies	7 – 43 odd, 49, 55, 59, 63, 65, 71, 73, 77, 81, 83
5.8	Solving Equations by Using the Zero Product Rule	1, 9, 10, 17, 21, 27, 29, 31, 33, 35, 39, 45, 47, 53, 57, 59, 61, 63, 67, 73, 75, 77, 79, 85, 91, 93
Chapter 5	<b>REVIEW</b>	1, 4, 5, 8 – 13, 18 – 22, 24 – 28, 32, 34, 36, 37, 40, 41, 43 – 48, 50 – 61, 63, 67, 69, 71, 73 – 79, 82 – 90, 94, 95, 96, 98 – 105, 110, 111
Chapter 5	<b>TEST</b>	2, 3 – 23, 26 – 31, 38
Chapter 1-5	<b>CUMULATIVE REVIEW</b>	1, 3 – 9, 11, 13 – 20, 22 – 25

**Chapter 6: Rational Expressions and Rational Equations****TENTATIVE MATHZONE DUE DATE: 11/6**

<b>Textbook Section</b>	<b>Topic</b>	<b>Textbook Problems (similar to required MathZone Problems)</b>
6.1	Rational Expressions and Rational Functions	1, 3 – 19 odd, 23, 31, 35, 43 – 57 odd, 61 – 69 odd, 77, 81
6.2	Multiplication and Division of Rational Expressions	1, 11, 13, 15, 17, 23, 25, 27, 29, 33, 39, 41, 45, 49
6.3	Addition and Subtraction of Rational Expressions	1, 9, 13, 17 – 69 odd
6.4	Complex Fractions	11, 13, 15, 17, 19, 21, 23, 27, 31, 35, 39, 41, 43
Chapter 6	Problem Recognition	1 – 20
6.5	Rational Equations	1, 11, 15, 17 – 37 odd, 41, 45, 51, 59, 60, 61 – 69 odd
6.6	Applications of Rational Equations and Proportions	15, 21, 25, 27, 29, 31, 47, 49, 51 – 54
Chapter 6	<b>REVIEW</b>	2, 3, 7 – 12, 17 – 48, 51 – 57, 59, 61, 64, 66, 67
Chapter 6	<b>TEST</b>	1, 2, 4 – 19, 23, 24
Chapter 1–6	<b>CUMULATIVE REVIEW</b>	1, 3, 4, 5, 7, 8, 10 – 17, 19 – 30

**Chapter 7: Radicals and Complex Numbers****TENTATIVE MATHZONE DUE DATE: 11/20**

<b>Textbook Section</b>	<b>Topic</b>	<b>Textbook Problems (similar to required MathZone Problems)</b>
7.1	Definition of an $n$ th Root	1, 2, 3, 5, 7 – 15 odd, 21 – 33 odd, 55 – 85 odd
7.2	Rational Exponents	1, 2, 9, 11, 13, 15, 17 – 21, 23, 25, 27, 29, 30, 34, 35, 37, 38, 39, 40, 41, 44, 51, 53, 55, 61, 63, 65, 69, 73, 77, 81, 85, 87
7.3	Simplifying Radical Expressions	1, 9, 13, 17, 19, 21, 25, 27, 29, 31, 35, 37, 43, 45, 47, 51, 57, 63, 65
7.4	Addition and Subtraction of Radicals	1, 2, 11, 13, 15, 21, 27, 33, 35, 37, 39, 45, 47, 55, 61, 63, 65, 77
7.5	Multiplication of Radicals	9, 11, 18, 19, 23, 25, 31, 33, 37, 39, 41, 45 – 50, 53 – 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 74, 83, 85
7.6	Rationalization	1, 11, 13, 15, 17, 21, 23, 25, 29, 33, 41, 45, 57, 59, 61, 65, 69, 73
Chapter 7	<b>REVIEW</b>	2, 3, 4 – 7, 12, 14, 16 – 22, 28 – 31, 34 – 54, 57 – 64
Chapter 7	<b>TEST</b>	1, 2, 4 – 9, 12, 14 – 18

Chapter 1-7	<b>CUMULATIVE EXERCISES</b>	1 – 5, 7, 10 – 13, 15 – 20, 22 – 26, 28
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**Chapter 8: Quadratic Equations and Functions**  
**TENTATIVE MATHZONE DUE DATE: 12/4**

<b>Textbook Section</b>	<b>Topic</b>	<b>Textbook Problems (similar to required MathZone Problems)</b>
8.1	Square Root Property and Completing the Square	1, 3, 5, 9, 11, 13, 15, 18 – 21, 23, 25, 27, 33, 39, 47, 49, 51, 55, 59
8.2	Quadratic Formula	1, 11 – 15, 17, 20 – 25, 28 – 31, 35, 54, 55, 57, 59, 61, 63, 65, 67, 68, 73 – 75, 78, 79, 81 – 83, 84
8.4	Graph of Quadratic Functions	1, 11, 13, 17, 20, 21, 23, 25, 31 – 33, 35, 37, 39, 41 – 48, 51 – 73 odd, 77, 79 – 82
8.5	Vertex of a Parabola and Applications	1, 17, 18, 23, 27, 31 – 41 odd, 45 – 47, 53, 55, 57
Chapter 8	<b>REVIEW</b>	1, 3, 5, 7 – 14, 20, 23, 25, 27, 29, 31, 32, 33, 36 – 40, 53 – 66, 69 – 75
Chapter 8	<b>TEST</b>	1, 2, 4, 5, 7, 8, 9, 10, 12, 17, 18 – 21, 24 – 29
Chapter 1 – 8	<b>CUMULATIVE REVIEW</b>	1, 2, 3, 5 – 10, 12 – 16, 18, 21, 23, 24, 26 – 30

**Chapter 9: More Equations and Inequalities**  
**TENTATIVE MATHZONE DUE DATE: 12/9**

<b>Textbook Section</b>	<b>Topic</b>	<b>Textbook Problems (similar to required MathZone Problems)</b>
9.1	Compound Inequalities	1, 9, 11, 13, 15, 21, 23, 27, 28, 29, 31 – 43 odd, 47, 49, 55, 59, 61, 65, 67
9.3	Absolute Value Equations	1, 9, 11, 13, 17, 21, 32, 35
9.4	Absolute Value Inequalities	9, 11, 13, 15, 19, 21, 23, 25, 26, 27, 29, 31, 32, 34, 35, 37, 43, 44, 45
9.5	Linear Inequalities in Two Variables	1, 15, 17, 19, 21, 23, 27, 29, 31, 33, 35, 41, 45, 49, 53

**Each of these assignments will be submitted and graded in Math Zone.** You can attempt them as many times as you like but you must complete them by the due date. Note that 10% your grade (or 100 points) depends on your scores from these assignments.

Some class time will be devoted to answering questions, however, not all questions can be answered in class. If you find you have unanswered questions, please see me during office

hours or go to the Math Tutorial Lab (106 EWG).

**Do not assume that working solely on the assignments will result in successful completion of this course.** Completing the assignment is only one activity that tests your understanding. You must also *read* the textbook, noting the techniques used in the examples and the development of mathematical concepts. Lecture notes are useful since they indicate important examples and concepts as well as types of problems that could be asked on exams and quizzes.



### **Finding help!**

Any time you are having difficulty or you are concerned about your progress, please come to my office hours or go to the Math Tutorial Site (106 EWG). I will announce my office hours but I am available at other times by appointment. Don't wait too long if you have questions!

There are other helpful study resources. If enough Math 010 students request assistance, the Academic Enrichment Center (149-150 South College Avenue) will set up a free group-tutoring seminar.

## **How to Access Math Zone**

**Section Code mentioned in class:** \_\_\_\_\_

To access MathZone materials, you must register. To do this, go to:

[www.mathzone.com](http://www.mathzone.com).

Choose the option for registering as a new student. Then you will be asked for a section code. This is a 8 digit and letter code unique to your particular class. I will give you in class. You must use the appropriate section code for your course and section. You will also need an Access Code purchased with the text or purchased online as you register.

Your email address and an individual password are requested. PLEASE use your University of Delaware email address. When asked for your name, make sure to enter it using the appropriate case. Make sure to enter your name correctly, i.e. if asked for last name, do not enter in first name!

**Students using this last semester were extremely enthusiastic about its effect on their understanding of the material.** Many students highly recommended it. In addition to the problem practice, there are several resources provided by MathZone that you should explore. Free tutorial assistance, student solutions manual and videos of classroom instructors presenting the ideas are just a few of the resources. Since you have paid for this program, use all its resources!

In order to access the main resources in MathZone, a number of plug-ins must be installed on your computer. If you go to the support page, <https://www.mhhe.com/math/mathzone/support/> a plug-in checker will automatically determine if you have all the plug-ins and also download what is needed. Here is a short list of most of the requirements:

**Shockwave** player: This will be needed to view all eProfessor files. If your browser does not contain this plug-in, refer to, [www.adobe.com/shockwave/download](http://www.adobe.com/shockwave/download) and choose the option to download the Shockwave Player.

**Flash** player: This will be needed to view all eProfessor files and any questions in your assignment that use the Answer Palette. If your browser does not contain this plug-in, refer to, [www.adobe.com/shockwave/download](http://www.adobe.com/shockwave/download) and choose the option to download the Flash Player.

**Java:** Java will be needed in order to use Online Tutor, Net Tutor, and other various self study resources. If your browser does not contain this plug-in, refer to [www.java.com](http://www.java.com) to download a free version of java. Once this has been downloaded, check to make sure java is enabled in your web browser.

**Quicktime:** QuickTime will be required to view the Video Lectures in MathZone. If you have difficulties viewing these video files, you can download Quicktime for free at [www.quicktime.com](http://www.quicktime.com).

Technical assistance is provided by Math Zone. The contact information is 1-800-331-5094 or you can contact them through the support provided at the site.

**Students who used it last semester have the following advice:**

1. USE A BROWSER LIKE MOZILLA OR EXPLORER. Other less-known browsers will create a number of problems including NOT saving your work!
2. Keep up with the material and take it seriously. Do not procrastinate.
3. DO NOT wait until the last minute. Technical problems did occur that could lead to missing a deadline!
4. Pay attention to how the answer should be typed.
5. Do NOT use the browser arrow keys when trying to go back in the program. Use the options in the program for going back to another display. Many students indicated that their work had been lost when they used these arrow keys.