

OAKTON COMMUNITY COLLEGE
MAT 110 FALL 2011

Professor N Ressler

Office: 3602 **Email:** nressler@oakton.edu **Web Page:** www.oakton.edu/~nressler

Office Hours: immediately prior to class; immediately after class

I.	<u>Course Prefix</u>	<u>Course Number</u>	<u>Course Name</u>	<u>Credit</u>	<u>Lecture</u>	<u>Lab</u>
	MAT	110	Intermediate Algebra	4	4	0

II. Prerequisite

MAT 070 (or appropriate placement on OCC Mathematics Assessment Test) and MAT 080 (or geometry proficiency).

III. Course (Catalog) Description

This course prepares students for College Algebra, Pre Calculus, Statistics and Quantitative Literacy. It covers systems of equations, factoring, polynomials, rational functions, radicals and complex numbers, quadratic equations and functions.

IV. Course Objectives:

Upon successful completion of this course, students will be able to:

Module 11 Objectives:

Use Interval Notation to display Solutions to Equations
Interpret Intersections and Unions of Sets and Solve Compound Inequalities.
Solve absolute value equations and inequalities.
Solve systems of equations with 3 variables.
Solve applied problems using systems of equations.

Module 12 Objectives:

Factor Polynomials including Sums and Differences of Cubes.
Divide Polynomials including Synthetics Division.
Solve Quadratic Equations by Factoring.
Simplify and perform operations on Rational Expressions.

Module 13 Objectives:

Simplify Complex Fractions.
Recognize and Solve Rational Equations.
Interpret and Solve Variation Problems.
Solve Applied Problems using Rational Equations.

Module 14 Objectives:

Simplify and Perform Operations on Radical Expressions.

Convert between Rational Exponents and Radicals.

Solve Radical Equation Problems.

Perform the Basic Operations of Complex Numbers.

Module 15 Objectives:

Solve Quadratic Equations using Principle of Square Roots, Completing the Square and the Quadratic Formula.

Solve Applied Problems using Quadratic Formula.

V. Academic Integrity:

Students and employees at Oakton Community College are required to demonstrate academic integrity and follow Oakton's Code of Academic Conduct. This code prohibits:

- cheating,
- plagiarism (turning in work not written by you, or lacking proper citation),
- falsification and fabrication (lying or distorting the truth),
- helping others to cheat,
- unauthorized changes on official documents,
- pretending to be someone else or having someone else pretend to be you,
- making or accepting bribes, special favors, or threats, and
- any other behavior that violates academic integrity.

There are serious consequences to violations of the academic integrity policy. Oakton's policies and procedures provide students a fair hearing if a complaint is made against you. If you are found to have violated the policy, the minimum penalty is failure on the assignment and, a disciplinary record will be established and kept on file in the office of the Vice President for Student Affairs for a period of 3 years.

Details of the Code of Academic Conduct can be found in the Student Handbook.

VI. Outline of Topics:

Module 11 Systems of Equations

1.4 Sets, Inequalities and Interval notation

1.5 Intersections, Unions and Compound Inequalities

1.6 Absolute Value Equations and Inequalities

3.5 Solving Systems in 3 variables

3.6 Solving Applied Problems in 3 variables

Module 12: Factoring Polynomials, solving equations by factoring , simplifying, multiplying and Dividing Fractions

4.6 Factoring Sums and Differences of Cubes

4.7 Factoring: A general strategy

4.8 Solving Polynomial Equations by Factoring and Applications

5.1 Multiplying, Dividing and Simplifying Rational Expressions

5.2 LCM's and Adding and Subtracting Fractions

5.3 Division of Polynomials

Module 13: Complex (compound) Rational Expressions, Solving Rational Equations, Solving Formulas, Variation

- 5.4 Complex (compound) Fractions
- 5.5 Solving Rational Equations
- 5.6 Applications and Proportions
- 5.7 Formulas and Applications
- 5.8 Variation and Applications

Module 14: Radicals and Complex Numbers

- 6.1 Radical Expressions
- 6.2 Rational Numbers as Exponents
- 6.3 Simplifying Radical Expressions
- 6.4 Adding, Subtracting and more Multiplication
- 6.5 More on Division of Radicals
- 6.6 Solving Radical Equations
- 6.8 The Complex Numbers

Module 15: Quadratic Equations and Functions

- 7.1 Solving Quadratic Equations by taking Square Roots and by Completing the Square
- 7.2 The Quadratic Formula
- 7.3 Applications of Quadratic Equations
- 7.4 More on Quadratic Equations
- 7.6 Graphing Quadratic Functions

VII. Methods of Instruction:

Students will work on the course on the computer during class and work outside of class to complete modules. Students will get individual and small group help from instructors in class and a tutoring lab will also be available outside of class.

VIII. Course Practices Required:

Mathematics 060, 070, 080 and 110 are sequential courses utilizing a classroom instructor and an interactive computer website. Each course is divided into five modules. Each module must be completed with a minimal posttest score of 70%. All course work must be completed in a notebook. Students may complete a course at any time during the semester. Upon completion of a course, the student can start the next sequential course in all courses except Mat 110. A new access code must be purchased at that time. If all modules of a course are not successfully completed within a semester, the student will receive a grade of "F" and can re-enroll in the same course the following semester beginning with their first uncompleted module.

Attendance/Participation will be monitored. Students are required to attend all class meetings. In addition to class, students are required to be online working on the course at least two additional hours each week. This can be done at home or in the lab where tutors will be available. Class attendance by students means the student is present and working on course material for the entire class period. Students who arrive late or leave early will be counted as absent. Students who interrupt class with cell phones or pagers will be asked to leave and counted as absent. If a student needs to leave during class, they must return within 10 minutes or they will be counted as absent. There are no excused absences with the exception of religious holidays.

Homework and quizzes can be taken in class or at home. All tests must be taken in class.

You may not leave the room once the test has begun. No electronic devices or notes may be used during a test. You may not migrate away from the test to another web site. If you do, the test will be shut down and you must ask the instructor for any additional attempts.

Your test cup indicator must be on top of your monitor while taking a test. You may not speak or otherwise communicate with anyone else during a test.

IX. Instructional Materials:

Required Website: MyMathLabPlus using Intermediate Algebra by *Marvin L. Bittinger*, 11th Edition

A scientific calculator should be used.

Handouts with solutions are available by clicking on Doc sharing on the top line of the website.

There is a link on the course homepage to TOPIC REVIEW that will summarize some of the topics covered.

X. Methods of Evaluating Student Progress:

Students must complete the following work with the following minimal scores:

Homework, Class Work, and Study Plans (unlimited attempts)	100%
Quizzes (unlimited attempts)	70%
Module Post-Test	70%

Course grade will be calculated with the following weights:

Module Post Tests	90% of final grade
Participation/Homework	10% of final grade

Grades will be awarded as follows:

A: 90- 100 B: 80-89.9 C: 70-79.9 D: 60-69.9

XI. Other Course Information:

Individual instructors will establish and announce specific policies regarding attendance, due dates and make-up work, incomplete grades, etc.

If you have a documented learning, psychological, or physical disability you may be entitled to reasonable academic accommodations or services. To request accommodations or services, contact the ASSIST office in Instructional Support Services. All students are expected to fulfill essential course requirements. The College will not waive any essential skill or requirement of a course or degree program.

If you have a documented learning, psychological, or physical disability you may be entitled to reasonable academic accommodations or services. To request accommodations or services, contact the ASSIST office in the Learning Center. All students are expected to fulfill essential course requirements. The College will not waive any essential skill or requirement of a course or degree program.

All assist students who require additional time on tests are required to take the test in the testing center.

Fall 2011 Schedule for MATHEMATICS 110

Dates listed are the *Saturday at the end of the week*. Sections listed should be completed by the end of the week. Module tests *must be taken in class* during that week to be on schedule.

Week 1 Aug 27:

1.4; 1.5

Week 2 Sept 3:

1.6; 2.2

Week 3 Sept 10:

3.5; 3.6

Week 4 Sept 17:
Module 11 Test; 4.6

Week 5 Sept 24:
4.7; 4.8

Week 6 Oct 1:
5.1; 5.2

Week 7 Oct 8:
5.3 Module 12 Test

Week 8 Oct 15:
5.4; 5.5

Week 9 Oct 22:
5.6; 5.7

Week 10 Oct 29:
5.8 Module 13 Test

Week 11 Nov 5:
6.1; 6.2

Week 12 Nov 12:
6.3; 6.4

Week 13 Nov 19:
6.5; 6.6

Week 14 Nov 26:
6.8

Week 15 Dec 3:
Module 14 Test; 7.1; 7.2

Week 16 Dec 10:
7.3; 7.4; 7.6

FINAL Exam Days Dec 13 and Dec 14:
Module 15 Test