Course Syllabus for
MAT120
Intermediate Algebra
Spring 2010
Prof. Reza Dai

GENERAL INFORMATION and CLASS MEETING TIMES
College Credits: 4 credits
Lecture: Tuesdays and Thursdays 1:00 - 2:50 at Des Plaines Room 1731
Office: Des Plaines Room 2719 / Skokie Room P110
Telephone: (847) 376-7114
E-mail: rdai@oakton.edu
Instructor's URL: http://www.oakton.edu/~rdai
MyMathLab URL: http://www.coursecompass.com
MyMathLab Course ID: dai36306

OFFICE HOURS
Day | Hours | Campus / Room
--- | --- | ---
Monday | 10:00 - 11:00 and 1:30-3:30 | Skokie @ Room P110
Tuesday | 12:20 - 12:50 and 2:55 – 4:25 | Des Plaines @ Room 2719
Wednesday | By appointments only | rdai@oakton.edu
Thursday | 12:20 - 12:50 and 2:55 – 4:25 | Des Plaines @ Room 2719
Saturday | 1:00 – 2:30 | Des Plaines @ Room 2719 or 2627

INSTRUCTIONAL MATERIALS
Textbook: http://www.oakton.edu/acad/dept/mcs/mat/textbooks.htm
Graphing Calculator: A TI-83 or higher numbered model will be used for instructional purposes.
http://www.prenhall.com/divisions/esm/app/calculator/

PREREQUISITE
MAT 052 (or an appropriate score on OCC Mathematics Assessment Test) and MAT 053 (or geometry proficiency). MAT 053 and MAT 120 may be taken concurrently.

COURSE (CATALOG) DESCRIPTION
Course covers algebraic principles at intermediate level. Content includes real and complex numbers, exponents, polynomials, radicals; first- and second-degree equations; system of equations; inequalities and rational expressions. Note: MAT 120 will not be counted towards an A.A., A.S., A.S.E., A.F.A., or A.A.T. degree, nor will most senior colleges or universities accept MAT 120 credits for transfer.

COURSE OBJECTIVES
A. Demonstrate an understanding of the real numbers and their properties.
B. Extend the basic operations and factoring with polynomials.
C. Extend the basic operations of rational expressions.
D. Solve first and second degree equations and inequalities in one variable.
E. Perform the basic operations of complex numbers.
F. Demonstrate the ability to use the definitions and laws of exponents, roots and
radicals.

G. Graph equations and inequalities in two variables.

H. Solve systems of equations and inequalities.

I. Demonstrate an understanding of functions.

J. Apply concepts and techniques to problem solving.

**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

**Outline of Topics:**

A. **Real Numbers**
   1. Properties
   2. Operations
   3. Real number system

B. **Solving Equations and Inequalities in One Variable**
   1. Solving linear equations
   2. Formulas
   3. Solving linear inequalities
   4. Compound inequalities
   5. Absolute value equations and inequalities
   6. Applications

C. **Graphing Equations and Inequalities in Two Variables**
   1. Rectangular coordinate system
   2. Distance, midpoint and slope formula
   3. Graphing
   4. Slope-intercept and point-slope formulas
   5. Parallel and perpendicular lines
   6. Graphing inequalities
   7. Graphing circles with center at origin
   8. Applications
D. Systems of Equations and Inequalities
1. Graphical solution
2. Algebraic solutions (elimination and substitution)
3. Solution of systems with three variables
4. Nonlinear equations
5. Systems of inequalities
6. Applications

E. Polynomials
1. Basic operations
2. Long division and synthetic division
3. Special products
4. Factoring
5. Using factoring to solve equations
6. Applications

F. Rational Expressions
1. Simplifying
2. Basic operations
3. Complex rational expressions
4. Solving equations with rational expressions
5. Formulas
6. Variation
7. Applications

G. Exponents, Roots and Radicals
1. Laws of exponents
2. Scientific notation
3. Rational exponents
4. Simplifying radical expressions
5. Operations with radical expressions
6. Rationalizing denominators
7. Solving equations with radical expressions
8. Applications

H. Complex Numbers
1. Definition
2. Simplifying powers of $i$
3. Basic operations

I. Quadratic Equations and Inequalities
1. Solving by factoring
2. Solving by completing the square
3. Solving by use of quadratic formula
4. Formulas
5. Algebraic solutions of nonlinear systems
6. Solving nonlinear inequalities
7. Applications

J. Functions
   1. Definition
   2. Function notation
   3. Graphing linear and quadratic functions
   4. Applications

K. Suggested optional topics: exponential and logarithm functions and equations.

OBSERVANCE OF RELIGIOUS HOLIDAYS
Oakton Community College recognizes the broad diversity of religious beliefs of its constituencies. The College has embraced a practice of shared responsibility in the event a religious observance interferes with class work or assignments. Students who inform instructors well in advance of an intended absence for a major religious observance will not be penalized. The instructor will make reasonable accommodations for students, which may include providing a make up test, altering assignment dates, permitting a student to attend another section of the same course for a class period or similar remedies. Instructors are not responsible for teaching material again.

DISABILITIES
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 (635-1658) in the Learning Center (Room 2400 Des Plaines). All students are expected to fulfill essential requirements. The college will not waive any essential skill or requirement of a course or a degree program.

METHODS OF INSTRUCTION
Methods of instruction can include lecture, discussion, problem solving (alone and in groups), weekly homework, and quizzes. Calculators will be used for solving some problems when appropriate.

COURSE PRACTICES REQUIRED
• Your regular attendance is expected and will be important to your success in this class. If it is necessary for you to miss class, you are still responsible for the material missed. You may find it beneficial to exchange phone numbers with a ‘study buddy’. Office hours will not be used to replace regular class attendance.
• Every student is expected to participate in class during group work and lecture.
• Come prepared for class. This includes:
  o Study the appropriate section(s) in the textbook.
  o Review the lecture notes. It is highly recommended that you review each lecture on the day it was presented.
  o Do all assigned homework.
  o Prepare for the next class by reading section(s) to be covered at the next class session.
• Ask for clarification if you don’t understand something. If you don’t feel comfortable asking questions in class, please ask them via e-mail or during office hours. The tutoring center (room 2400 DP) is another excellent resource for answers.
Assignments, Quizzes and Exams

• All homework and quizzes will be done using MyMathLab computer software which accompanies the text. The course website may be accessed either from a home computer or from any computer on campus. Some class time will be devoted to homework lab sessions; however, it will be necessary to do most of the homework either at home or at school outside of class time.
• Homework for material covered for a particular test must be completed by the test date to receive credit.
• MyMathLab can be accessed through your instructor’s CourseCompass course.

To register and enroll in your instructor’s CourseCompass course:
  o Go to http://www.coursecompass.com, and click the Register button in the Students area.
  o Follow the on-screen instructions to register and enroll, or click Student Registration Instructions for a copy of step-by-step instructions.

• You will need your own calculator for use on quizzes and exams. Calculators may not be shared and you are not permitted to use more than one calculator on an exam or quiz. Cellular phones and the like may not be used as a calculator in class.
• Quizzes cannot be made up, but the lowest quiz score will be dropped. If it is necessary for you to miss a quiz, a zero will be assigned. Missing more than one quiz will result in zeros being averaged into your grade.
• There will be three exams and a comprehensive final exam. As a rule, make-up exams are not put in the testing center. The instructor will only put one make-up exam per student in the testing center per semester and the exam will only be placed in the testing center by the instructor per student request and only on the condition that a serious, unavoidable reason is provided in writing as to why the student is/was not able to take the exam at the arranged time in class. It is generally the case that makeup exams are more difficult than the exam given during the usual meeting time. All make-up exams MUST be taken BEFORE the exam is reviewed the next period.

METHODS OF EVALUATING STUDENT PROGRESS

| 3 Exams: | The schedule of each exam is indicated in the Outline of Topics. The structure of each exam will be explained prior to each exam. | 270 |
| Final Exam: | The Final Exam will be a comprehensive exam. However, the emphasis would be on material covered after the third exam. | 110 |
| Homework: | Homework will be assigned online on a weekly basis | 64 |
| Quizzes: | There will be many quizzes throughout the semester. The lowest grade will be dropped. | 56 |
| TOTAL POINTS: | | 500 |

GRADE DISTRIBUTION: The following scale will be applied to the total score on assignments and quizzes/exams to determine the final grade:

<table>
<thead>
<tr>
<th>Grading Standards</th>
<th>Final Grade</th>
<th>Range</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superior work</td>
<td>A</td>
<td>450 - 500</td>
<td>&gt; 90%</td>
</tr>
<tr>
<td>Good work</td>
<td>B</td>
<td>400 - 449</td>
<td>80% to 89%</td>
</tr>
<tr>
<td>Satisfactory work</td>
<td>C</td>
<td>350 - 399</td>
<td>70% to 79%</td>
</tr>
<tr>
<td>Less than satisfactory</td>
<td>D</td>
<td>300 - 349</td>
<td>60% to 69%</td>
</tr>
<tr>
<td>Failure to meet requirements</td>
<td>F</td>
<td>Less than 300 Pts.</td>
<td>Less than 60%</td>
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ADDITIONAL OAKTON INFORMATION

Please note the following dates:

January 23 noon  Last day to submit proof of residency, business service agreements and chargebacks/joint agreements
February 14  Last day to withdraw from 16 week courses and have course dropped from record*
February 14  Last day to change to Audit for 16 week courses*
February 15  Presidents' Day holiday, College closed
February 21  Incomplete (I) grades from fall 2009 semester for which faculty have not submitted final grades will become an "F" after this date.**
March 12 noon  Last day for filing Graduation Petitions
March 14  Last day to withdraw with a W from 16-week courses*
            Students will receive a grade in all courses in which they are enrolled after March 14.
March 15 - 21  Spring Recess, College closed
March 22  Classes resume after Spring recess
March 29  Registration opens for summer 2010 sessions
April 12  Registration opens for fall 2010 sessions
May 13, 14  Evaluation Days***
May 14  Last day of student attendance
May 17  Grading Day. Faculty on campus and available to students at designated times.
May 17  Summer 2010 interim classes begin
May 18 noon  Grades due
May 18  Commencement
May 28  Summer hours begin. College closed Friday through Sunday until the week of August 9.
May 31  Memorial Day holiday, College closed

* Consult Registration & Records for deadlines on classes meeting less than 16 weeks.

** Students must make arrangements with individual faculty members regarding deadlines to submit required work for Incomplete (I) grades.

*** Two days to be used for instruction or final student evaluations or culminating course activities. Classes not scheduled to meet on these days and classes which do not meet for the duration of a semester will ordinarily use the last class session(s) for instruction or final student evaluations or culminating course activities.

**** Faculty on campus and available to students at designated times.

Academic Calendar is available online at: http://www.oakton.edu/visitor/acad-cal.htm

The instructor reserves the right to make changes to the syllabus on an as needed basis. Any such changes will be announced in class. If you are not in class, it is your responsibility to find out about these changes from one of your classmates.
**TENTATIVE COURSE SCHEDULE**

The following is intended to be an accurate outline of the course, but the instructor reserves the right to make modifications dependent upon pace and progress, and potential class cancellations, e.g. snow days

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topic</th>
<th>Assignments / Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tue Jan 19</td>
<td>Chapter R: Review of Basic Algebra</td>
<td>Quiz #R</td>
</tr>
<tr>
<td>Thu Jan 21</td>
<td>Chapter 1: Solving Linear Equations</td>
<td>HW #1</td>
</tr>
<tr>
<td>Tue Jan 26</td>
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<tr>
<td>Thu Jan 28</td>
<td></td>
<td>Quiz #1</td>
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<tr>
<td>Tue Feb 02</td>
<td>Chapter 2: Graphs, Functions, and Applications</td>
<td>HW #2</td>
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<tr>
<td>Thu Feb 04</td>
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<tr>
<td>Tue Feb 09</td>
<td>Review Session</td>
<td>Quiz #2</td>
</tr>
<tr>
<td>Thu Feb 11</td>
<td><strong>Exam #1</strong></td>
<td>Covers Chapters R, 1, and 2</td>
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<tr>
<td>Tue Feb 16</td>
<td>Chapter 3: Systems of Equations</td>
<td>HW #3</td>
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<tr>
<td>Thu Feb 18</td>
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<tr>
<td>Tue Feb 23</td>
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<td>Quiz #3</td>
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<tr>
<td>Thu Feb 25</td>
<td>Chapter 4: Polynomials and Polynomial Functions</td>
<td>HW #4</td>
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<tr>
<td>Tue Mar 02</td>
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<td>Thu Mar 04</td>
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<tr>
<td>Tue Mar 09</td>
<td>Review Session</td>
<td>Quiz #4</td>
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<tr>
<td>Thu Mar 11</td>
<td><strong>Exam #2</strong></td>
<td>Covers Chapters 3, and 4</td>
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<tr>
<td>Mar 15 - Mar 21</td>
<td>Spring Recess</td>
<td><strong>College Closed</strong></td>
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<tr>
<td>Tue Mar 23</td>
<td>Chapter 5: Rational Expressions, Equations and Functions</td>
<td>HW #5</td>
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<td>Thu Mar 25</td>
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<td>Tue Mar 30</td>
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<td>Quiz #5</td>
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<tr>
<td>Thu Apr 01</td>
<td>Chapter 6: Radical Expressions, Equations and Functions</td>
<td>HW #6</td>
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<td>Tue Apr 06</td>
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<td>Thu Apr 08</td>
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<tr>
<td>Tue Apr 13</td>
<td>Review Session</td>
<td>Quiz #6</td>
</tr>
<tr>
<td>Thu Apr 15</td>
<td><strong>Exam #3</strong></td>
<td>Covers Chapters 5, and 6</td>
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<tr>
<td>Tue Apr 20</td>
<td>Chapter 7: Quadratic Equations and Functions</td>
<td>HW #7</td>
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<td>Thu Apr 22</td>
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<td>Tue Apr 27</td>
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<td>Quiz #7</td>
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<tr>
<td>Thu Apr 29</td>
<td>Chapter 8: Exponential and Logarithmic Functions</td>
<td>HW #8</td>
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<tr>
<td>Tue May 04</td>
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<tr>
<td>Thu May 06</td>
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<tr>
<td>Thu May 11</td>
<td>Review Session</td>
<td>Quiz #8</td>
</tr>
<tr>
<td>Tue May 13</td>
<td><strong>Final Exam</strong></td>
<td>Cumulative Exam</td>
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**Testing Center:**

URL: [http://www.oakton.edu/learn/testhome.htm](http://www.oakton.edu/learn/testhome.htm)

Room 2409, 847-635-1939, Des Plaines Campus

Room A135, 847-635-1446, Skokie Campus

**Learning Center:**

URL: [http://www.oakton.edu/learn/](http://www.oakton.edu/learn/)

Room 2400, 847-635-1658, Des Plaines Campus

Room A135, 847-635-1434, Skokie Campus