# Math 135: Intermediate Algebra Mercer Community College/Project Inside, Fall 2007 <br> Instructors: Charlie Conroy, Jill Knapp, Carol Prevost, Aurelien Fraisse, Jennifer Burnett, Joel Blecher, Mark Krumholz 

## Why Learn Algebra?

This question has both a practical and a philosophical answer. Practically, algebra today is as much a part of literacy as reading and writing. Someone who does not know algebra, and has not practiced the skills of abstraction and problem-solving that it teaches, faces serious disadvantages when searching for a job, reading a newspaper, or thinking about political issues that hinge on technical questions. Conversely, mastering algebra opens doors to economic success, and it empowers us as citizens.

The philosophical answer is that algebra is the language in which the sciences are written. Modern science is powerful because it allows us to think in abstractions, and to recognize apparently different phenomena as manifestations of the same underlying principles. Algebraic abstraction is what makes this possible. Someone who does not speak the language of algebra can have at best a limited understanding of science, just as someone who does not speak English can have only a limited appreciation of Shakespeare. The sciences are human achievements as significant and as rewarding to study as Shakespeare, and to appreciate them we must learn algebra.

## Logistics

Each week there will be two classes, on Tuesday and Thursday nights. Attendance on both of these nights is mandatory. We will cover one topic per week. The first class on each topic will introduce the concepts, and the the second class will focus on problem solving. During that class, you will work in small groups under the supervision of the instructor.

## Assignments

For each week and each topic there will be a reading assignment from the textbook, Akst $\mathcal{\xi}$ Bragg. You are expected to complete the reading assignment for each week before the first class on the next topic. Each week there will also be a homework assignment that is due in class one week after it is assigned. The instructor will collect homework at the beginning of the class. We will accept late homeworks up to one week after the original due date, at a penalty of $1 / 3$ of the credit. We will return your corrected homeworks, along with solution sets, one week after you turn them in. Please be sure to write the date, which homework assignement this is, and your first and last name on your homework. Please try to write neatly. On all assignments you must show your work. A correct answer without the work shown will get no credit. Conversely, an incorrect answer with work showing that you made an attempt or were on the right track will receive partial credit. In addition to the weekly homeworks, there will be two projects, three unit tests, and a final exam.

The course schedule and homework assignments are on the back of this sheet. The homework assignments are numbered. Homework problems are odd numbers only!

## Grading

Grades will be based on homework (15\%), projects (25\%), unit tests (35\%), and final exam (25\%).

| Date | Topic | Reading | Homework Due |
| :---: | :---: | :---: | :---: |
| September 25 | Linear equations |  |  |
| September 27 | Linear equations | 2.1 |  |
| October 2 | Linear inequalities |  | 1. 2.1: 1-31, 39-53, 59-69, 81-87, 95, 97, 103 |
| October 4 | Linear inequalities | 2.3-2.4 |  |
| October 9 | Plotting and lines I |  | 2. 2.3: 1-37, 41-63, 71-77, 83 <br> 2.4: 1-17, 21-25, 35-39, 53, 57, 59 |
| October 11 | Plotting and lines I | 3.1-3.3 |  |
| October 16 | Plotting and lines II |  | 3. 3.1: $1,3,17-23 ; \quad 3.2: 1-11,25-29,49-57$ <br> 3.3: 7-39, 53-61 |
| October 18 | Plotting and lines II | 3.4, 3.6 |  |
| October 23 | Exam I review |  | 4. 3.4: $1-21,33-47,51-61 ; \quad 3.6: 1-7,13-41,51-57$ |
| October 25 | EXAM I |  |  |
| October 30 | Polynomials |  |  |
| November 1 | Polynomials | 5.1-5.3 |  |
| November 7 | Factoring |  | 5. 5.1: 9-25, 33-55, 61-73 <br> 5.2: 1-19, 29-49, 67-77, 101, 103, 109-115 <br> 5.3: 1-15, 21-27, 39, 51 |
| November 8 | Factoring | 5.4-5.5 |  |
| November 13 | Quadratic equations |  | 6. 5.4: 1-11, 17-21, 29-41, 57-61 <br> 5.5: 1-17, 21-23, 55-61, 93, 95 |
| November 15 | Quadratic equations | 5.6-5.7 |  |
| November 20 | Exam II Review |  | 7. 5.6: 7, 15-19, 23-27, 31, 65, 117-119 <br> 5.7: 1-23, 31, 61-67 |
| November 21 | EXAM II |  | Project I |
| November 27 | Rational expressions |  |  |
| November 29 | Rational expressions | 6.1-6.2 |  |
| December 4 | Rational equations, complex numbers |  | 8. $6.1: 3-11,21-25,31-33,45-49,53,61-63,79,83$, 85 <br> 6.2: 1-15, 21-37, 51-57 |
| December 6 | Rational equations, complex numbers | 6.4, 7.6 |  |
| December 11 | Quadratic formula |  | 9. 6.4 : $1-31,61,63,69 ; \quad 7.6: 1-15$ |
| December 13 | Quadratic formula | 8.1-8.2, 8.4 |  |
| December 18 | Linear systems, radical equations |  | 10. 8.1: 1-17, 35-47, 69-75 <br> 8.2: 1-17, 27, 35-39, 45, 49, 51 <br> 8.4: 1-17, 21-25, 39-43 |
| December 20 | Linear systems, radical equations | 4.2, 7.1 |  |
| December 27 | Exam III Review |  | 11. 4.2: 1-5, 9-13, 21-27, 37, 39, 45-55 <br> 7.1: 1,3, 7-13, 17-25, 33-37, 49-51, 61-63, 93-97 |
| January 3 | EXAM III |  | Project II |
| January 8 | Final review |  |  |
| January 10 | FINAL EXAM |  |  |

