Colleges of Arts and Sciences

MTH/209 Version 4
College Mathematics II

Course Syllabus

University of Phoenix

MTH/209

Please print a copy of this syllabus for handy reference.
Whenever there is a question about what assignments are due, please remember this syllabus is considered the ruling document.
Please note that the instructor's assignments may vary from the original syllabus found on student web page. Assignments in this document take priority. While the reading assignments and learning objectives remain the same, some of the assignments in this syllabus have been customized for this particular section.

GENERAL COURSE INFORMATION

COURSE NUMBER: MTH 209

COURSE TITLE: College Mathematics II

COURSE START DATE: Monday 7/26/2010

COURSE END DATE: Monday 8/23/2010

LOCATION: Arlington Learning Center 6pm to 10pm*

REQUIRED READING: Students are required to read all materials available at the Course Materials site for this course on http://ecampus.phoenix.edu.
Dugopolski, M. (2009). *Elementary and intermediate algebra* (3rd ed.). New York: McGraw-Hill.

Note: All required text materials can be found on the MTH 209 eResource course page. The eResource page can be accessed through the University of Phoenix Student and Faculty Web site at https://ecampus.phoenix.edu/

ELECTRONIC RESOURCES:

ALEKS® System, the OLS, and a Web page I keep the syllabus and large resources stored for you: http://www.bikerjohn.com/classes/mth209_II/

ALEKS® instructor's course code:
Course code: **UD6L6-JKPEM**

Students are required to read all materials available at the Course Materials site for this course on http://ecampus.phoenix.edu.

Bring some version of the textbook and example problems to class every week (along with note cards and blank paper).

Facilitator Information:

Instructor's Name:	John Ensworth
Telephone:	703-618-6773 (cell), 703-721-4870 (home)
University of Phoenix E-mail Address:	jenswort@email.uophx.edu (for large attachments)
Alternative (personal) E-mail Address:	johnensworth@earthlink.net
Availability:	After class and by appointment (see details below) Snail-Mail: Available upon request as a last resort! * Expect class to run to 10pm! Leaving early except in emergency will hurt your class participation grade and (indirectly) your overall class performance.

Facilitator Availability

I am generally available from 9 a.m.- 9 p.m. Eastern Time on most days, but I attempt to reserve Sunday for my family. During the week, I am online most of the time during that 9 a.m.-9 p.m. time frame. On Saturdays, I tend to be online in the morning only. If these times are not convenient for you, please let me know. I will be happy to accommodate your schedule, if possible. I provide you with these times to make it easier to communicate with me, and not to limit our contact. I want you to know that, should you need to contact me outside these time frames, you should not hesitate to do so.

For emergencies, when you are not able to gain access to messages on the Online Learning System (OLS), please send a message to my personal email address. In the event a third party needs to contact me, please direct them to my contact information listed under "facilitator information." No third party should use your login credentials to gain access to the classroom.

Welcome!

Mathematics, believe it or not, is the base level language of the universe and reality itself. If you learn how to think 'math' you'll see and understand the world around you all that better (including your checkbook and investments). I plan to make college algebra as digestible and enjoyable as possible. Stick with it and keep that attitude positive!

Instructor Bio

I am currently the Senior Science Education Specialist at the Institute for Global Environmental Strategies which is a non-profit organization formed (among other things) to conduct independent reviews on all Earth and space science education products produced by or for NASA. (www.strategies.org) My position is the one responsible for directly conducting these reviews and yearly workshops at NASA centers and at the large education conferences (i.e. NSTA, NCTM) that introduce the products that pass on the criteria of scientific accuracy and classroom usability.

For the last decade I was a masters student and a PhD candidate in meteorology at the University of Oklahoma. I have earned undergraduate degrees in physics, astronomy, geography and meteorology with minors in math and computer science.

I became interested in astronomy in the 2nd grade and began to teach astronomy to cub scouts and boy scouts by the 5th grade. I began to work for the Arizona State University planetarium when Halley's Comet paid the inner solar system a visit in 1985-1986 and taught the astronomy labs, became head TA and eventually taught an astronomy class through the rest of the 80's (as an undergraduate). I have worked an internship at Steward Observatory, at the University of Arizona, Tucson, site testing for the placement of the Mt. Graham observatory complex. I've also observed at the 4-meter telescope at Kitt Peak, a 36" telescope at Kitt Peak, and at the Multi-Mirror Telescope at Mt. Whipple.

I've successfully run 49 astronomy nights for Norman residents and OU students and students and the public in Virginia and Maryland and have worked at the Oklahoma City Omniplex Planetarium for almost 10 years. I've taught astronomy for the college degree completion program at Mid-America Christian University (formerly Mid-America Bible College) for the last 3 years and am a member of the Oklahoma City Astronomy Club. I have also served an internship at NASA Goddard Space Flight Center.

In environmental science and related fields, I began to study meteorology and earth science in the 5th grade when my telescope got rained on during a freak night time desert thunderstorm. Convinced I could forecast better than the guys in Phoenix, I began to study the weather. In college I conducted the meteorological investigations for the placement (site testing) of the Mt. Graham Observatory complex and helped astronomers understand what makes stars twinkle (it is a blurring of the image caused by turbulence and density currents in the lower few hundred to a thousand feet in the atmosphere). I also worked on a project to trace the origin of air pollution in the Grand Canyon. As a graduate student I conducted field research on lightning, fine scale (time and space) rainfall variations, aided in a geographic study of rainfall and plant distributions by elevation at Black Mesa, OK, and chased tornadoes. I taught meteorology, earth system science and helped with environmental geography courses throughout the 1990's and into the 2000's. I keep the weather channel on enough at home to burn lines into the TV screen.

Mathematically, my areas of study require the highest levels of math out there (darn it) so I have to speak Algebra, calculus, trigonometry and the like as second, third, fourth and so forth languages. And, besides, math is FUN!

Online Learning System Forums

We will have a set of Online Learning System forums available to us during this class. To access the forums, click on the Go to class link on your student website.

These web-based forums provide you with:
1. A common area solely for our class group (Main forum) where you can post questions between our on-campus workshop meetings;
2. A Chat Room forum which you can use for non-class interactions with classmates (be sure to honor the Student Code of Conduct in this, and every, forum!);
3. Electronic access to the course syllabus which will be used in this class (see the syllabus in the Course Materials forum);
4. Electronic venues for Learning Team meetings and team paper drafts to use as each team deems best (I will assign a specific Learning Team forum for each team's use during our first on-campus workshop meeting). Learning Team meetings should be documented here regardless of the mode students chose to actually meet; and
5. A personalized electronic drop-box – Individual Forum - for completed assignments. Students will not be able to see or access any private forum except the one created for him or her individually. Feedback will also be provided through this forum.

There are no online attendance or participation requirements during this course. All attendance and participation activity will occur only during our on-campus workshop meetings. The forums exist to enhance our ability to communicate throughout the course.

If you have any questions about the class forums, please let me know during our on-campus class time or by posting your question(s) in the Main forum.

Where to Go to Class: Your Course Forums

Main: This is the main forum for the class and is where you may ask questions between class meetings. It has read-and-write access for everyone. That means all other students will see information posted here (including your homework).
Chat-Room: This is a read-and-write access forum. It is designed as a place to discuss issues not related to the course content.
Course-Materials: This is a read-only forum, which means you can read messages here but cannot send any. This is where I will post the course syllabus and materials.
Learning-Team-A, B, C, D, E and **F:** These six **Learning Team** forums may be used as workrooms for the learning teams. You will be assigned to one of these learning teams. All other teams have access to these messages!
Individual Forum: You will see one forum with your name on it. This is a private forum, shared only by you and me, the facilitator. Your classmates will not have access to this forum. This is where you will post your individual assignments, and where I will post your feedback. You can also ask questions here. However, if you have general questions about instructions of assignments, please post those in the Main forum, since other students may benefit by that exchange as well.

There are no online attendance or participation requirements during this course. All attendance and participation activity will occur only during our on-campus workshop meetings. The forums exist to enhance our ability to communicate throughout the course.

If you have any questions about the class forums, please let me know during our on-campus class time or by posting your question(s) in the Main forum.

Where to Submit Your Assignments

***A*ssignment Section:** This is where you will submit all formal assignments. Navigate to the **Assignments link** on eCampus. Locate the link to submit your assignment as an attachment.

There are no online attendance or participation requirements during this course. All attendance and participation activity will occur only during our on-campus workshop meetings. The forums exist to enhance our ability to communicate throughout the course.

If you have any questions about the class forums, please let me know during our on-campus class time or by posting your question(s) in the Main forum.

Policies

For class policies please see the “Policies” link on the left side of the Materials page for the course on eCampus. Faculty and students/learners will be held responsible for understanding and adhering to all policies contained within that link. University policies are subject to change so please be sure to read them at the beginning of each class as it may have changed since your last class. Policies may be slightly different depending on the modality in which you attend class. If you have recently changed modalities it is important you read the policies governing your current class modality.

Learning Teams

University of Phoenix students are expected to work effectively in diverse groups and teams to achieve tasks. They must collaborate and function well in team settings as both leaders and followers. They should respect human diversity and behave in a tolerant manner toward colleagues and peers. If you experience difficulties working with your team, you are expected to resolve them within the team if possible. However, please feel free to contact me for guidance if you have concerns in this area. Because Learning Team projects are outcome-based, all members of your Learning Team will generally earn the same grade for Learning Team projects. However, I reserve the right to report different grades for different Learning Team members if I see a substantial imbalance in

individual contribution. Learning Teams should provide a brief summary of any communication held outside the forum. Therefore, if you hold conference calls, work in a real-time chat room, or get together outside the OLS (Online Learning System) environment in another way, please post a log, transcript, or summary in the **Learning Team** forum. Further, do not use any of these supplementary communication tools unless everyone on your Learning Team agrees to the method and to the schedule. If you have any questions, please contact me.

Several of the assignments in this class will be completed in Learning Teams of three to five students. I will set up these teams by the end of Week 1. If you have any requests for teammates, please let me know by Thursday of the first week via your Individual Forum. Learning Team Charters and Peer Evaluation forms are required. Please see the instructions in the weekly sections for more information. All Learning Team assignments must be submitted in the **Assignments link**. It is only necessary for one member on each learning team to submit the team assignment.

It is expected that you will actively participate with your learning team and contribute to the team discussions by a) contributing original work that is accepted and used by the team with proof of originality b) participating in the project from assignment organizing through meaningful final review of the team project for submission, and c) ensuring to your team that your contributions are your original work and properly quoted, cited, and referenced.

Extra Electronic Resources

I'll supply PowerPoint, Adobe Acrobat (pdf), and HTML files of the presentation materials as well as many many worked problems in PDF documents to help you work most of the problems in the book (except homework problems).

These are located at: http://www.bikerjohn.com/classes/mth209_II/

I suggest bringing a laptop to class so you can view the example problem files OR that you print them and bring them to class (including week 1).

What to bring to class.

- Bring a laptop with the example problems OR the example problems printed out. Also be ready to work from the textbook online OR printed out.
- Bring blank paper to work problems in class.
- Bring note cards to write down things you'll want to memorize.
- A calculator may be helpful as well.

Preparation

Students are expected to do the required weekly learning in an independent manner. All assignments, *including readings*, are to be completed before submissions are due.

Grading Criteria

For Mathematics homework, 100% comes from the worked content. Show your work to get partial credit for incorrect answers (homework, quizzes and tests).

Grading Policies

All written work will be graded according to APA guidelines. Assessments of written assignments will be based on style, content and format, including such items as clarity of communication, sentence and paragraph construction, punctuation, spelling, and grammar. Written assignments should be submitted on Online Learning System Forums (OLS). *Assignments should be neatly typed and follow the guidelines of the individual assignment in terms of length and content.* All work will be graded on a 100-point scale (see above). Grades will be assigned according to the following criteria:

A = Excellent performance. Work is exemplary and worthy of emulation by others. Student is in full attendance and constructively contributes to the learning environment.
B = Above average performance. All assignments are complete and exhibit a complete understanding and an ability to apply concepts.
C = Average performance. Student accomplishes only the minimum requirements. Oral and written communication is at an acceptable level for the class.
D = Demonstrates understanding at a minimum level. Work is minimally passing.
F = Work is not passing, characterized by incompleteness, lateness, unsatisfactory demonstration of understanding and application.

Late Assignments
Assignment Submission

Late assignments receive a 10% deduction for each day they are late if assignments are not posted by 6:00 p.m. Eastern Time on the day they are due. Assignments more than 2 days late will not be accepted. Assignments submitted after the last day of class will not be accepted. Technological issues are not considered valid grounds for late assignment submission. In the event of a University of Phoenix server outage, students should submit assignments through email to the instructor and post to the assignments link when systems are restored.

95-100	A	74-76	C
90-94	A-	70-73	C-
87-89	B+	67-69	D+
84-86	B	64-66	D
80-83	B-	60-63	D-
77-79	C+	0-59	F

Partial points will be rounded to the nearest full point; for example, 83.4=83 leads to a grade of B-; and 83.5=84 leads to a grade of B.

Course Changes

Please note that the instructor's assignments may vary from the original syllabus found on student web page. Assignments in this document take priority. While the reading assignments and learning objectives remain the same, some of the

Tutoring Assistance Program- TAP

Should you need any additional assistance for this course, please give me a "TAP" so that you can be more successful in my course. As soon as you notify me that you need additional assistance, I can provide you with the contact information for the CCC, Jay Famílant. Jay Famílant will be able to pair you with a tutor. By participating in TAP you will be able to receive one-on-one tutoring with another faculty member who will be able to provide you with extra assistance.

Faculty Participation and Feedback

Just as we expect students to fulfill the requirements, as set out in this syllabus, there are a number of duties that University of Phoenix faculty are committed to performing in the courses that they facilitate. As a facilitator in this course, I will:

- Provide you with clear instructions regarding what is expected of you in this course
- Facilitate a 4-hour workshop each week of this course
- Provide you with weekly written feedback on your assignments and in-class participation within six days via OLS forum
    - This feedback will note areas needing improvement and will suggest areas upon which you should focus
    - Feedback will be posted to your **Individual** forum
    - After I send feedback each week, I will post a notification in the **Main** forum
- Provide you a grade book with your cumulative grade within six days via OLS forum.

- Post final grades within six days after the last workshop

Technical Support
Technical Support is available 24 hours a day, 365 days a year.
Call 1-877-832-4867, or use the e-mail support form.

Answers to the most common issues are found in the Knowledge Base by clicking **Help**, found at the top of every student Web site.

Center for Mathematics Excellence (definitely used in a math class)

Look for the "Center for Mathematics Excellence" on your course web page or under the "LIBRARY" tab at the top of the page. There are a variety of services offered to help students improve their math skills. Live Online Tutoring is one service that is available for students enrolled in MTH/208 and MTH/209. Tutors are available from Monday through Friday starting at 2:00 p.m. to 11:00 p.m. Phoenix time and Saturday and Sunday from 10:00 a.m. to 11:00 p.m. Phoenix time. Online tutoring is also available for RES/341students and RES/342 students Monday through Friday from 4:00 p.m. to 10:00 p.m. Phoenix time and Saturday and Sunday from 12:00 p.m. to 8:00 p.m. When live tutoring is not available, questions can be submitted at the Q&A Center. A faculty tutor will respond to questions within 24 hours. Please contact your Academic Counselor if you need further information.

Course Description

This course continues the demonstration and examination of various basic algebra concepts that was begun in MTH 208: College Mathematics I. It assists in building skills for performing more complex mathematical operations and problem solving than in earlier courses. These concepts and skills should serve as a foundation for subsequent quantitative business coursework. Applications to real-world problems are emphasized throughout the course. Specific applications to disciplines such as statistics, accounting, finance, and economics are demonstrated and discussed. A variety of other applications, such as geometry, personal finance, science, and engineering, are also demonstrated and discussed.

Course Topics & Objectives

Week One: Exponents and Polynomials

- Identify a term, coefficient, factor, base, and exponent in an algebraic expression.
- Simplify expressions involving terms, coefficients, factors, bases, and exponents.
- Use the order of operations in algebraic expressions.
- Simplify polynomials.
- Demonstrate the distributive property for polynomials.
- Perform operations on polynomials using addition, subtraction, multiplication, and division.
- Apply scientific notation to real-world situations.

Week Two: Factoring Polynomials

- Demonstrate that factoring a polynomial is the reverse of multiplying a polynomial.
- Use greatest common factor (GCF) to factor monomials out of quadratic trinomials.
- Factor single-variable polynomials by grouping.
- Factor quadratic trinomials.
- Factor multivariate polynomials by grouping.
- Factor differences of squares.
- Factor complete squares.
- Solve quadratic equations using the zero factor property.
- Apply the Pythagorean Theorem to real-life problems.

Week Three: Rational Expressions and Equations

- Identify rational expressions.

- Identify restrictions on the variable in the denominator of a rational expression.
- Simplify rational expressions.
- Determine the least common denominator (LCD) to combine rational expressions.
- Perform operations on rational expressions.
- Solve rational equations.
- Apply rational equations and proportions to real-life problems.

Week Four: Radical Expressions, Radical Equations, and the Quadratic Formula

- Simplify radical expressions.
- Perform operations with radical expressions.
- Solve radical equations.
- Solve a quadratic equation using the quadratic formula.
- Determine the number of solutions for a quadratic equation by using the discriminant.
- Solve word problems using quadratic equations.

Week Five: Algebra Review

- Review all topics and objectives from Weeks One through Four.

Course Materials

Dugopolski, M. (2009). *Elementary and intermediate algebra* (3rd ed.). New York: McGraw-Hill.

All electronic materials are available on your student Web site and at http://www.bikerjohn.com/classes/mth209_II/

Software

ALEKS® System

Weekly Point Values

Week One	
Individual Assignment: Individual Exercises	5.0
Individual Assignment: Quiz	2.5
Individual Assignment: Learning Progress in ALEKS®	2.5
Week Two	
Individual Assignment: Individual Exercises	5.0
Individual Assignment: Quiz	2.5
Individual Assignment: Learning Progress in ALEKS®	2.5
Learning Team Assignment: Team Exercises	7.5
Week Three	
Individual Assignment: Individual Exercises	5.0
Individual Assignment: Quiz	2.5
Individual Assignment: Learning Progress in ALEKS®	2.5
Learning Team Assignment: Team Exercises	7.5
Week Four	
Individual Assignment: Individual Exercises	5.0
Individual Assignment: Quiz	2.5
Individual Assignment: Learning Progress in ALEKS®	2.5
Learning Team Assignment: Team Exercises	7.5
Week Five	
Individual Assignment: Final Examination	15.0
Learning Team Assignment: Team Exercises	7.5
All Weeks	
Participation & Discussion Questions	15.0
Point Total	**100**

Week One

Exponents and Polynomials

- Identify a term, coefficient, factor, base, and exponent in an algebraic expression.
- Simplify expressions involving terms, coefficients, factors, bases, and exponents.
- Use the order of operations in algebraic expressions.
- Simplify polynomials.
- Demonstrate the distributive property for polynomials.
- Perform operations on polynomials using addition, subtraction, multiplication, and division.
- Apply scientific notation to real-world situations.

Course Assignments

1. **Readings**

   - **Read** Ch. 4 of *Elementary and Intermediate Algebra*.

2. **Nongraded Activities and Preparation**

   - **Study** the CME Online Tutoring – Overview Presentation and the CME Online Tutoring – Getting Started document located in Week One of the MTH/209 Web page.

   - **Become** familiar with the Equation Editor and Microsoft® Excel Graphing tools available for use in this course by selecting the **Equation Editor and Graphing Tutorials** link located on the MTH/209 Web page. These tools can be used to properly create equations for electronic submission of assignments.

   - **Study** the Introduction to ALEKS® Presentation located in Week One of the MTH/209 Web page.

   - **Register** in ALEKS® for MTH/209.

     - If you already have an ALEKS® account from MTH/208, change your ALEKS® account to MTH/209. The ALEKS® instructor's course code: **UD6L6-JKPEM**

     - If you do not have an ALEKS® account, register in ALEKS® for MTH/209. You will register in ALEKS® by first selecting the link titled **ALEKS®**. This link is located in the Assessment section of each week's page of the MTH/209 Web page. This link will take you to the Running Start program in the Center for Mathematics Excellence (CME). Once you have landed on this page, select the ALEKS for Math 208/209 link located on that page. You will then be taken directly into ALEKS® for registration. Be sure to review the Introduction to ALEKS® Presentation located in Week One of the MTH/209 Web page for additional information about ALEKS®.

     - Enter your instructor's course code after you have registered in ALEKS®. If you do not enter your instructor's course code upon registration, you may enter your instructor's course code by clicking on the **Options** button on the red-brown menu bar and entering it there.
       The ALEKS® instructor's course code: **UD6L6-JKPEM**

- **Complete** the initial assessment in ALEKS®.

- **Complete** the green pie slice (Review of Math 208) of your ALEKS® MyPie.

Note. ALEKS® access for MTH/208 and MTH/209 courses is for 15 weeks. If you have taken a break or withdrawn from MTH/209 and are retaking the course, you may find that your access has expired. You will be notified when you login and may be prompted to purchase additional access to ALEKS®. Please do not purchase ALEKS® access for your 5-week course, as this is provided by the University as part of your course. In order to have your access reinstated, please contact ALEKS® directly at support@aleks.com or call (714) 245-7191.

3. **Individual Assignment:** Individual Exercises
NOTE: Only homework from sections covered in class will be due next week. Check the OLS Main section for sections you actually need to be responsible for this week. The ALEKS quiz (due the following week) will also ONLY reflect the material covered this week.

   - **Resource:** Ch. 4 of the text
   - **Complete** the following exercises from Ch. 4 of the text:

     - Section 4.1: Exercises 50, 66, and 72
     - Section 4.2: Exercises 26, 40, 58, 68, 72, and 84
     - Section 4.3: Exercises 32, 48, and 64
     - Section 4.4: Exercises 16, 34, and 68
     - Section 4.5: Exercises 28, 40, and 52
     - Section 4.6: Exercises 48, 74, and 78
     - Section 4.7: Exercises 12, 24, 26, and 66

4. **Individual Assignment:** Learning Progress in ALEKS®

   - **Resources:** ALEKS® and the Introduction to ALEKS® Presentation, located in Week One of the MTH/209 Web page

   - **Complete** the blue pie slice (Exponents and Polynomials) of your ALEKS® MyPie. Refer to the Introduction to ALEKS® Presentation, located in Week One of the MTH/209 Web page, for additional information about ALEKS®.

5. **Individual Assignment:** Quiz

   - **Complete** an in-class or ALEKS® quiz.

6. **Learning Team Instructions:** Learning Team Charter

   - **Resource:** Learning Team Toolkit
   - **Complete** the Learning Team Charter.

7. **Discussion Questions**

   - What is the difference between a term and a factor?
   - When do you use the distributive property?
   - What operations are associated with coefficients?
   - What operations are associated with exponents?
   - What is the basic principle that can be used to simplify a polynomial? What is the relevance of the order of operations in simplifying a polynomial?

- When multiplying two polynomials, what fundamental property do you use repeatedly?
- When working with exponents, is there any difference in operations if the exponents are whole numbers or fractions?
- In what sense do exponentials and radicals behave exactly the same way?
- Explain how division of real numbers corresponds with division of polynomials. Provide examples.
- Why is it necessary to study the order of operations and the laws of operations before you begin solving equations?
- What operations can you associate with coefficients? What operations can you associate with exponents?
- Among the three laws, commutative, associative, and distributive, which one is most frequently used in algebra?

Week Two

Factoring Polynomials

- Demonstrate that factoring a polynomial is the reverse of multiplying a polynomial.
- Use greatest common factor (GCF) to factor monomials out of quadratic trinomials.
- Factor single-variable polynomials by grouping.
- Factor quadratic trinomials.
- Factor multivariate polynomials by grouping.
- Factor differences of squares.
- Factor complete squares.
- Solve quadratic equations using the zero factor property.
- Apply the Pythagorean Theorem to real-life problems.

Course Assignments

1. **Readings**

   - **Read** Ch. 5 of the text.

2. **Individual Assignment:** Individual Exercises

   - **Resource:** Ch. 5 of the text
   - **Complete** the following exercises from Ch. 5 of the text:
     NOTE: Only homework from sections covered in class will be due next week. Check the OLS Main section for sections you actually need to be responsible for this week. The ALEKS quiz (due the following week) will also ONLY reflect the material covered this week.
     - Section 5.1: Exercises 40, 68, and 72
     - Section 5.2: Exercises 16, 62, and 80
     - Section 5.3: Exercises 58, 64, and 102
     - Section 5.4: Exercises 18, 26, 38, and 88
     - Section 5.5: Exercises 36, 44, 66, 72, and 82
     - Section 5.6: Exercises 18, 32, 54, 58, 66, 98, 100, and 104

3. **Individual Assignment:** Learning Progress in ALEKS®

   - **Resources:** ALEKS® and the Introduction to ALEKS® Presentation, located in Week One of the MTH/209 Web page

   - **Complete** the red pie slice (Factoring) of your ALEKS® MyPie. Refer to the Introduction to ALEKS® Presentation, located in Week One of the MTH/209 Web page, for additional information about ALEKS®.

4. **Individual Assignment:** Quiz

   - **Complete** an in-class or ALEKS® quiz.

5. **Learning Team Assignment:** Team Exercises

   - **Resource:** Ch. 4 of the text.
   - **Complete** the following exercises from Ch. 4 of the text:
     NOTE: Only team homework from sections covered in class will be due next

week. Check the OLS Main section for sections you actually need to be responsible for this week.

- Section 4.2: Exercise 114
- Section 4.3: Exercises 94 and 98
- Section 4.4: Exercises 78 and 86
- Section 4.5: Exercise 98
- Section 4.6: Exercises 88 and 96
- Section 4.7: Exercise 88

6. **Discussion Questions**

- When simplifying like terms, how do you determine the like terms?
- How do you determine the common factors in an expression?
- What is factoring by grouping? When factoring a trinomial by grouping, why is it necessary to write the trinomial in four terms?
- What is a common factor? Where do you use the common factor in an expression consisting of various terms?
- When simplifying a rational expression, why do you need to factor the numerator and the denominator?
- When adding and subtracting rational expressions, why do you need a LCD?
- When a polynomial is not factorable what is it called? Why?
- Choose three integers *a*, *b*, and *c*. (Negative numbers are welcome.) Now use *a*, *b*, and *c* to create a trinomial ax^2+bx+c. Can you factor this trinomial? How would you create a trinomial that will factor?

Week Three

Rational Expressions and Equations

- Identify rational expressions.
- Identify restrictions on the variable in the denominator of a rational expression.
- Simplify rational expressions.
- Determine the least common denominator (LCD) to combine rational expressions.
- Perform operations on rational expressions.
- Solve rational equations.
- Apply rational equations and proportions to real-life problems.

Course Assignments

1. **Readings**

   - **Read** Ch. 6 of the text.

2. **Nongraded Activities and Preparation**

   - **Complete** the simulation, College Algebra II – Using Math to Plan a Community Fair, located in Week Three of the MTH/209 Web page.

3. **Individual Assignment:** Individual Exercises

   - **Resource:** Ch. 6 of the text
   - **Complete** the following exercises from Ch. 6 of the text:
     NOTE: Only homework from sections covered in class will be due next week. Check the OLS Main section for sections you actually need to be responsible for this week. The ALEKS quiz (due the following week) will also ONLY reflect the material covered this week.
     - Section 6.1: Exercises 18, 44, 92, and 102
     - Section 6.2: Exercises 24, 70, and 76
     - Section 6.3: Exercises 20 and 66
     - Section 6.4: Exercises 8, 28, 40, 56, and 62
     - Section 6.5: Exercises 52 and 58
     - Section 6.6: Exercises 30, 42, and 50

4. **Individual Assignment:** Learning Progress in ALEKS®

   - **Resources:** ALEKS® and the Introduction to ALEKS® Presentation, located in Week One of the MTH/209 Web page

   - **Complete** the purple pie slice (Rational Expressions and Equations) of your ALEKS® MyPie. Refer to the Introduction to ALEKS® Presentation, located in Week One of the MTH/209 Web page, for additional information about ALEKS®.

5. **Individual Assignment:** Quiz

   - **Complete** an in-class or ALEKS® quiz.

6. **Learning Team Assignment:** Team Exercises

   - **Resource:** Ch. 5 of the text.

- **Complete** the following exercises from Ch. 5 of the text:
  NOTE: Only team homework from sections covered in class will be due next week. Check the OLS Main section for sections you actually need to be responsible for this week.
  - Section 5.1: Exercises 94 and 96
  - Section 5.2: Exercise 100
  - Section 5.3: Exercise 110
  - Section 5.4: Exercise 106
  - Section 5.5: Exercise 112
  - Section 5.6: Exercises 74 and 92

7. **Discussion Questions**

- Why do you factor a quadratic equation before you solve?
- When solving a rational equation, why it is OK to remove the denominator by multiplying both sides by the LCD and why can you not do the same operation when simplifying a rational expression?
- What square root property is essential to solve any radical equation involving square root?
- What are extraneous solutions of an equation? Why do they sometimes occur in the process of solving rational or radical equations? Provide examples to support your answer.
- What are the different types of equations you have learned to solve?
- Why are there usually two solutions in quadratic equations?
- Choose an example of a rational equation from the textbook and present a step-by-step solution.
- Under what situation would one or more solutions of a rational equation be unacceptable?

Week Four

Radical Expressions, Radical Equations, and the Quadratic Formula

- Simplify radical expressions.
- Perform operations with radical expressions.
- Solve radical equations.
- Solve a quadratic equation using the quadratic formula.
- Determine the number of solutions for a quadratic equation by using the discriminant.
- Solve word problems using quadratic equations.

Course Assignments

1. **Readings**

   - **Read** sections 9.1, 9.2, 9.3, 9.4, and 9.5 in Ch. 9 of the text.
   - **Read** sections 10.1, 10.2, and 10.3 in Ch. 10 of the text.

2. **Individual Assignment:** Individual Exercises
   NOTE: Only homework from sections covered in class will be due next week. Check the OLS Main section for sections you actually need to be responsible for this week. The ALEKS quiz (due the following week) will also ONLY reflect the material covered this week.
   - **Resource:** Ch. 9 and Ch. 10 of the text
   - **Complete** the following exercises from Ch. 9 of the text:
     - Section 9.1: Exercises 12, 26, 36, 64, and 84
     - Section 9.2: Exercises 22, 38, and 104
     - Section 9.3: Exercises 6, 36, 88, and 94
     - Section 9.4: Exercises 12, 30, 60, and 76
     - Section 9.5: Exercises 16, 18, 30, and 32
   - **Complete** the following exercises from Ch. 10 of the text:
     - Section 10.1: Exercises 80, 86, and 96
     - Section 10.2: Exercises 10, 14, 30, 42, and 48
     - Section 10.3: Exercises 64 and 70

3. **Individual Assignment:** Learning Progress in ALEKS®
   - **Resources:** ALEKS® and the Introduction to ALEKS® Presentation, located in Week One of the MTH/209 Web page
   - **Complete** the orange pie slice (Radicals and Quadratic Equations) of your ALEKS® MyPie. Refer to the Introduction to ALEKS® Presentation, located in Week One of the MTH/209 Web page, for additional information about ALEKS®.

4. **Individual Assignment:** Quiz
   - **Complete** an in-class or ALEKS® quiz.

5. **Learning Team Assignment:** Team Exercises
   NOTE: Only team homework from sections covered in class will be due next week.

Check the OLS Main section for sections you actually need to be responsible for this week.

- **Resource:** Ch. 6 of the text.
- **Complete** the following exercises from Ch. 6 of the text:

  - Section 6.1: Exercise 120
  - Section 6.2: Exercise 82
  - Section 6.4: Exercise 90
  - Section 6.5: Exercise 64
  - Section 6.6: Exercise 68
  - Section 6.7: Exercises 30, 46, 50, and 62
  - Section 6.8: Exercises 36, 54, and 64

6. **Discussion Questions**

- How do you compute the intercepts of a quadratic function?
- What is the number of *x*- and *y*-intercepts that quadratic functions may have?
- What is the meaning of *axis* in regards to a quadratic function? How can the axis of a parabola help you to graph a quadratic function?
- Present at least two different ways of graphing quadratic functions.
- Which topic covered in this class was the most challenging for you? Why? How did you overcome this challenge?
- What is the meaning of the word *parameters*?
- Why is it sufficient to define a quadratic function, $f(x) = ax^2 + bx + c$ in terms of *a*, *b*, and *c*?
- Find at least one practical application of the Pythagorean Theorem.

Week Five

Algebra Review

- Review all topics and objectives from Weeks One through Four.

Course Assignments

1. **Readings:** There are no readings for this week.

2. **Nongraded Activities and Preparation:** Homework Review

   - **Review** the assigned homework, and bring any problems or difficulties to the attention of the faculty member.

3. **Individual Assignment:** Final Examination

   - **Complete** an open-book, open-note final examination.

4. **Learning Team Assignment:** Team Exercises
   NOTE: Remaining homework and team work from rest of the sections covered in class will be due 4 days after class ends. Check the OLS Main section for sections you actually need to be responsible for this week. The ALEKS final will cover the entire course AND remaining material and is due 6 days after class ends.
   - **Resource:** Ch. 9 and Ch. 10 of the text.
   - **Complete** the following exercises from Ch. 9 of the text:

     - Section 9.1: Exercise 108
     - Section 9.2: Exercises 128 and 132
     - Section 9.3: Exercise 114
     - Section 9.5: Exercise 116

   - **Complete** the following exercises from Ch. 10 of the text:

     - Section 10.1: Exercise 104
     - Section 10.2: Exercises 82, 90, and 94
     - Section 10.3: Exercises 84, 90, and 94