



Mathematics HCC Northwest

Math 0409: Foundations of Mathematics
CRN48381 – Spring/2015

Room 211 | 10:00am-12:00pm Mon and Wed

4 hour lecture course +0 hour lab / 64 hours per semester 16 weeks

Textbook: Prealgebra and Introductory Algebra (3rd Ed) by Bittinger, Ellenbogen, Beecher and Johnson

ISBN-13: 9780321731715

Course ID:Fleetwood23448

Instructor:Jill Fleetwood

Instructor Contact Information: jill.fleetwood@hccs.edu

Office location and hours: Math Lab, 12:00-12:30 MW

Course Description

Foundations of Mathematics: Topics include real numbers, proportions, descriptive statistics, basic geometry, polynomials, factoring, linear equations, inequalities, linear models, percentage models, order of operations, set operations, and an introduction to other models which may include exponential, quadratic and/or rational models. quadratic equations and rational expressions. A departmental final examination must be passed with a score of 60% or more in order to pass the course. Prerequisite: MATH 0306 or equivalent test score.

Prerequisites

TSIA Reading Score above 341 or GUST 0339 with a grade of C or higher; TSIA ABE level 5 or 6; TSIA Math Score 336 – 347 with Elementary Algebra Score 5 – 15 and Intermediate Algebra Score 0 – 6; Math 0106: Pass with “C” or better

Course Goal:

This course is intended for students who have either never been exposed to algebra or who have been away from the subject for quite some time. Particularly, this course is intended to prepare students for the study of Math 0312 or for a non-Calculus-based College Level Math course, specifically Math 1332 or Math 1333.

Course Student Learning Outcomes (SLO):

1. Identify and apply properties of real numbers, and perform accurate arithmetic operations with numbers in various formats.
2. Demonstrate the ability to manipulate/simplify algebraic expressions, & classify/solve algebraic equations with appropriate techniques.
3. Demonstrate the use of elementary graphing techniques.
4. Apply basic geometric theorems and formulas to rectangles, squares, parallelograms, triangles, parallelograms, triangles and circles.
5. Apply “Proportional Reasoning” to solve related problems including ratios, rates, proportion, percent and conversions of units.
6. Recognize, examine, and interpret the linear, quadratic, exponential, and/or rational models of equations.

Learning objectives

Students will:

1. add, subtract, multiply and divide real numbers and manipulate certain expressions.
2. find the perimeter and area of rectangles, squares, parallelograms, triangles and circles.
3. solve problems using scientific notation.
4. simplify algebraic expressions.
5. solve problems using equations and inequalities.
6. factor polynomials using the techniques of the greatest common factor, grouping, difference of two squares and trinomials of the form $x^2 + bx + c$.
7. multiply and divide, and simplify rational expressions
8. plot ordered pairs and graph linear equations.
9. graph linear inequalities.
10. Find the rate of change of a line & write its equation.
11. Model situations with linear, quadratic, or exponential functions.

CALENDAR

TOPIC	Approximate Time
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GEOMETRY and SET OPERATIONS (Unit I)	(6 hours)
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This unit presents the basic geometric figures, their relations, and basic set operations. The instructor should emphasize the perimeter and area of triangles, quadrilaterals, and circles and set operations including union, intersection, and complement. Listed below are the subtopics covered in this unit:

8.2 Perimeter

8.3 Area

8.4 Circles

Appendix E. Introduction to Set Operations

INTRO. TO REAL NUMBERS & ALGEBRAIC EXPRESSIONS (Unit II)	(8 hours)
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This unit presents an introduction to algebra and the real number system. The instructor should emphasize addition, subtraction, multiplication and division of real numbers and the properties of real numbers. This unit concludes with simplifying expressions and the order of operations. Listed below are the subtopics covered in this unit:

9.1 Introduction to Algebra

9.2 The Real Numbers

9.3 Addition of Real Numbers

9.4 Subtraction of Real Numbers

9.5 Multiplication of Real Numbers

9.6 Division of Real Numbers

9.7 Properties of Real Numbers

9.8 Simplifying Expressions; Order of Operations

RECOMMEND EXAMINATION I: COVERS UNITS I & II	(1.5 to 2 hours)
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SOLVING EQUATIONS AND INEQUALITIES (Unit III)	(8 hours)
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The major emphasis of this chapter is to teach solving linear equations. A mastery of this chapter requires that the student have a thorough understanding of combining like terms and properties of equality. The skills necessary for solving equations is extended to include working with the equality of two fractions and solving inequalities in a single variable. Listed below are the subtopics covered in this unit:

10.1 Solving Equations: The Addition Principle

10.2 Solving Equations: The Multiplication Principle

10.3 Using the Principles Together

10.4 Formulas

10.5 Applications of Percent

10.6 Applications and Problem Solving

- 10.7 Solving Inequalities
- 10.8 Applications and Problem Solving with Inequalities

TOPIC	Approximate Time
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GRAPHS OF LINEAR EQUATIONS AND INEQUALITIES (Unit IV) (6 hours)

This unit introduces plotting ordered pairs, rates of change (slopes), and sketching linear equations of the form $y = mx + b$ and linear inequalities. Listed below are the subtopics covered in this unit:

- 11.1 Graphs Linear Equations
- 11.2 More with Graphing and Intercepts
- 11.3 Slope and Applications
- 11.5 Graphing Using the Slope and the y-Intercept
- 11.7 Graph Linear Inequalities in Two Variables

POLYNOMIALS: OPERATIONS (Unit V) (12 hours)

This unit begins with integer exponents and scientific notation. The topics include the techniques to recognize a polynomial and find the degree of a polynomial; perform addition, subtraction, multiplication and division of polynomials. Listed below are the subtopics covered in this unit:

- 12.1 Integers as Exponents
- 12.2 Exponents and Scientific Notation
- 12.3 Introduction to Polynomials
- 12.4 Addition and Subtraction of Polynomials
- 12.5 Multiplication of Polynomials
- 12.6 Special Products
- 12.7 Operations with Polynomials in Several Variables
- 12.8 Division of Polynomials (Monomials Divisors Only)

RECOMMEND EXAMINATION 2: COVERS UNITS III, IV, & V (1.5-2 HOURS)

POLYNOMIALS: FACTORING (Unit VI) (6 hours)

This unit covers factorization of polynomials. Listed below are the subtopics covered in this unit:

- 13.1 Introduction to Factoring (GCF and Grouping)
- 13.2 Factoring Trinomials (of the type $x^2 + bx + c$ only)
- 13.5 Factoring Trinomial Squares and Differences of Squares
- 13.6 Factoring : A General Strategy (Omit $ax^2 + bx + c, a \neq 1$)

TOPIC**Approximate Time****RATIONAL EXPRESSIONS AND EQUATIONS (Unit VII)****(4 hours)**

This unit begins with multiplying and simplifying rational expressions. The topics include the techniques to reduce or build-up fractions; perform addition, subtraction, multiplication and division of fractions. Listed below are the subtopics covered in this unit:

14.1 Multiplication and Simplifying Rational Expressions (Omit $ax^2 + bx + c$, $a \neq 1$)

14.2 Division and Reciprocals (Omit $ax^2 + bx + c$, $a \neq 1$)

14.7 Rational Equations and applications (Proportions only)

RADICAL EXPRESSIONS AND EQUATIONS (Unit VIII)**(2 hours)**

This unit covers finding the principal square roots, identifying radicands of radical expressions, identifying whether a radical expression represents a real number and simplifying radical expressions with a perfect-square radicand. Listed below is the subtopic covered in this unit:

16.1 Introduction to Radical Expressions (Include Perfect Square Radicands Only)

LINEAR, QUADRATIC, AND EXPONENTIAL MODELING (Unit IX)**(4 hours)**

This unit covers includes matching scatter plots with tables of values and simple equations, knowing that a linear equation has a straight line, quadratic is U-shaped, and exponential either increases or decreases without bound in one direction and levels out in the other direction (without mentioning the term "asymptote.") Listed below are the subtopics covered in this unit: The material for Unit IX can be found in the Eagle Online Model Course.

Linear modeling

Quadratic modeling

Exponential modeling

CALENDAR

A tentative schedule is attached with specific due dates & exam dates. Please plan accordingly.

Instructional Methods

This is an on campus/hybrid/web enhanced/online class. While you will be logging into Eagle Online for notes, announcements and other important information on a weekly basis, most of the instruction will come from a homework management system called MyMathLab, which must be purchased for this class. The MyMathLab Course ID for this class is Fleetwood23448.

Technical Support

If you should experience technical difficulties during the semester, these problems are not under the control of the instructor. Such technical problems should be directed to technical support. For Eagle Online tech support, go to the HCC Eagle Online support website call 713-718-2000, options 4, 2, 3 (available 24 x 7). For MyMathLab tech support call 1-800-677-6337 or 1-888-695-6577.

Student Assignments

Homework and quizzes/assessments will be submitted online through MyMathLab. Three (at least) major exams and the final exam will be proctored and taken in class/an HCC testing center in Houston, TX (or another approved testing center in the student's local area, for any student in the class who does not reside in the Houston area). No calculators or formula sheets will be allowed on any proctored exam

Final Exam Policy in Developmental Mathematics

The final letter grade will be determined accordingly:

- a. Students who score less than 50% on the Final Examination will be awarded a course grade of “F.”
- b. Students who score greater than or equal to 50% and less than 60% on the Final Examination will be awarded a grade of “D” or “F.” The “D” grade will be awarded to those whose overall average is greater than or equal to 60%. The “F” grade will be awarded to those whose overall average is less than 60%.
- c. A student whose score is greater than or equal to 60% on the Final Examination will have their grades averaged and awarded a grade based upon the standard 10 point scale.

AVERAGE	GRADE
$90\% \leq \text{Final Average} \leq 100\%$	A
$80\% \leq \text{Final Average} < 90\%$	B
$70\% \leq \text{Final Average} < 80\%$	C
$60\% \leq \text{Final Average} < 70\%$	D
Final Average < 60%	F

Note: The instructor cannot assign a grade of IP or W. The grade of “FX” is given when a student fails due to lack of attendance.

Assessments Grade Determination

Your grade will be determined by the following:	Details	Percent of Final Average
Assignments	Homework, MML	10%
Quizzes & Participation	In class, MML	5%
Attendance	-1% for each absence after the first	5%
Exams	4 in class, closed book	50%
Final	Comprehensive, closed book	30%
Total		100%

HCC Policy Statement – ADA

Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Disability Services Office at his or her respective college at the beginning of each semester. Faculty members are authorized to provide only the accommodations requested by the Disability Support Services Office. Persons needing accommodations due to a documented disability should contact the ADA counselor for their college as soon as possible. For questions, please contact John Reno at 713.718.8397. To visit the ADA Web site, please visit www.hccs.edu then click Future students, scroll down the page and click on the words Disability Information.

Southeast Campus: John Reno, ADA Counselor
 6815 Rustic St.
 Houston, TX 77087
 713-718-8397

HCC Policy Statement:

Academic Honesty

While you will read more about academic integrity in the System policies, you should be aware of my specific policies on cheating. I consider cheating to be the copying of work (homework or exam) from any source, getting someone else to complete your assignment, or turning in group work to which you have not contributed. If I suspect that you have cheated on any assignment/exam, your grade will be a zero (non-negotiable). If someone else in the class is involved in cheating with you, that person will receive a zero as well. During an exam, you may be asked to leave, if suspected of cheating.

Note: As with all developmental mathematics courses at HCC, **the use of a calculator during an exam is prohibited** and will be considered cheating.

A student who is academically dishonest is, by definition, not showing that the coursework has been learned, and that student is claiming an advantage not available to other students. The instructor is responsible for measuring each student's individual achievements and also for ensuring that all students compete on a level playing field. Thus, in our system, the instructor has teaching, grading, and enforcement roles. You are expected to be familiar with the University's Policy on Academic Honesty, found in the catalog. What that means is: If you are charged with an offense, pleading ignorance of the rules will not help you. Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Penalties and/or disciplinary proceedings may be initiated by College System officials against a student accused of scholastic dishonesty. "Scholastic dishonesty": includes, but is not limited to, cheating on a test, plagiarism, and collusion.

Cheating on a test includes:

- Copying from another students' test paper;
- Using materials not authorized by the person giving the test;
- Collaborating with another student during a test without authorization;
- Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or part the contents of a test not yet administered;
- Bribing another person to obtain a test that is to be administered.

Plagiarism means the appropriation of another's work and the unacknowledged incorporation of that work in one's own written work offered for credit.

Collusion mean the unauthorized collaboration with another person in preparing written work offered for credit. Possible punishments for academic dishonesty may include a grade of 0 or F in the particular assignment, failure in the course, and/or recommendation for probation or dismissal from the College System. (See the Student Handbook)

HCC Policy Statements Class Attendance: *It is important that you come to class!* Attending class regularly is the best way to succeed in this class. Research has shown that the single most important factor in student success is attendance. Simply put, going to class greatly increases your ability to succeed. You are expected to be on time at the beginning of each class period. For complete information regarding Houston Community College's policies on attendance, please refer to the Student Handbook. You are responsible for materials covered during your absences. Class attendance is checked daily. Although it is your responsibility to drop a course for nonattendance, the instructor has the authority to drop you for excessive absences.

Your attendance will be recorded from a class roster that you must sign each class period. If you are extremely tardy, and you miss signing the roster, you will be counted as absent. If you leave before the end of the class period, you will also be counted as absent. If you do not come prepared for class (completed assignments, book, etc.) and/or fail to participate in class, you may be counted absent. For each absence after the first, a 1% deduction will be made from your final grade (up to 5%).

If you are not attending class, you are not learning the information. As the information that is discussed in class is important for your career, **students may be dropped from a course after accumulating absences in excess of six (6) hours of instruction.** The six hours of class time would include any total classes missed or for excessive tardiness or leaving class early.

You may decide NOT to come to class for whatever reason. As an adult making the decision not to attend, you do not have to notify the instructor prior to missing a class. However, if this happens too many times, you may suddenly find that you have "lost" the class.

Poor attendance records tend to correlate with poor grades. If you miss any class, including the first week, **you are responsible for all material missed.** It is a good idea to find a friend or a buddy in class who would be willing to share class notes or discussion or be able to hand in your work if you unavoidably miss a class

Make-up Exams: ALL MAKEUPS ARE AT THE INSTRUCTOR'S DISCRETION. You may be able to make - up one missed exam **PROVIDED** you contact me regarding the make-up within one day of the missed exam (preferably the day before, morning of, or day of) with a valid excuse. If you do not contact me in the noted time, I will not consider a make-up test and you will receive a zero. If I do consider a make-up exam, you must take it outside of class time. If you fail to make up the exam in the time period arranged, you will not have another opportunity to change it or make it up.

HCC Course Withdrawal Policy

If you feel that you cannot complete this course, you will need to withdraw from the course prior to the final date of withdrawal (March 24th 2015). Before, you withdraw from your course; please take the time to meet with the instructor to discuss why you feel it is necessary to do so. The instructor may be able to provide you with suggestions that would enable you to complete the course. Your success is very important. Beginning in fall 2007, the Texas Legislature passed a law limiting first time entering freshmen to no more than **SIX** total course withdrawals **throughout** their educational career in obtaining a certificate and/or degree.

To help students avoid having to drop/withdraw from any class, HCC has instituted an Early Alert process by which your professor *may* “alert” you and HCC counselors that you might fail a class because of excessive absences and/or poor academic performance. It is your responsibility to visit with your professor or a counselor to learn about what, if any, HCC interventions might be available to assist you – online tutoring, child care, financial aid, job placement, etc. – to stay in class and improve your academic performance.

If you plan on withdrawing from your class, you **MUST** contact a HCC counselor or your professor prior to withdrawing (dropping) the class for approval and this must be done **PRIOR** to the withdrawal deadline to receive a “W” on your transcript. ****Final withdrawal deadlines vary each semester and/or depending on class length, please visit the online registration calendars, HCC schedule of classes and catalog, any HCC Registration Office, or any HCC counselor to determine class withdrawal deadlines. Remember to allow a 24-hour response time when communicating via email and/or telephone with a professor and/or counselor. Do not submit a request to discuss withdrawal options less than a day before the deadline.** If you do not withdraw before the deadline, you will receive the grade that you are making in the class as your final grade.

Repeat Course Fee

The State of Texas encourages students to complete college without having to repeat failed classes. To increase student success, students who repeat the same course more than twice, are required to pay extra tuition. The purpose of this extra tuition fee is to encourage students to pass their courses and to graduate. Effective fall 2006, HCC will charge a higher tuition rate to students registering the third or subsequent time for a course. If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your study habits, reading and writing homework, test taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available.

Classroom Behavior

Everyone will be expected to conduct themselves with courtesy and respect in this classroom. Failure to do so, may result in disciplinary measures.

Use of Camera and/or Recording Devices

As a student active in the learning community of this course, it is your responsibility to be respectful of the learning atmosphere in your classroom. To show respect of your fellow students and instructor, you will turn off your phone and other electronic devices, and will not use these devices in the classroom unless you receive permission from the instructor.

Use of recording devices, including camera phones and tape recorders, is prohibited in classrooms, laboratories, faculty offices, and other locations where instruction, tutoring, or testing occurs. Students with disabilities who need to use a recording device as a reasonable accommodation should contact the Office for Students with Disabilities for information regarding reasonable accommodations

Instructor Requirements

Students are expected to submit homework and quizzes online thru MyMathLab by the designated due dates and take all exams IN PERSON during the scheduled testing dates. Notebooks are required for taking notes, doing in class work, storing tests, and taking homework notes. They will be submitted before the final for a grade!

Personal Communication Device Policy:

All personal communication devices (any device with communication capabilities including but not limited to cell phones, blackberries, pagers, cameras, palmtop computers, lap tops, PDA's, radios, headsets, portable fax machines, recorders, organizers, databanks, and electronic dictionaries or translators) must be muted or turned off during class. Such activity during class time is deemed to be disruptive to the academic process. Personal communication devices are to not be on the student desk during examinations. Usage of such devices during exams is expressly prohibited during examinations and will be considered cheating (see academic honesty section above).

Student Course Reinstatement Policy:

Students have a responsibility to arrange payment for their classes when they register, either through cash, credit card, financial aid, or the installment plan. Faculty members have a responsibility to check their class rolls regularly, especially during the early weeks of a term, and reconcile the official class roll to ensure that no one is attending class whose name does not appear on it. Students who are dropped from their courses for nonpayment of tuition and fees who request reinstatement after the official date of record (OE Date) can be reinstated by making payment in full and paying an additional \$75 per course reinstatement fee. A student requesting reinstatement should present the registrar with a completed Enrollment Authorization Form with the signature of the instructor, department chair, or dean who should verify that the student has been attending class regularly. Students who are reinstated are responsible for all course policies and procedures, including attendance requirements.

Resources:

Tutoring: Free tutoring is available at the Eastside campus in the Tutoring Assistance Center, room 203, Felix Morales Bldg. (713)718-2694 (Math Lab-downstairs through tutoring lab). Additional help is also available through <http://m.se.hccs.edu/index.php> and through Student Support Services.

Students can get free assistance, 24 hours a day, 7 days a week, in Math, English and other subjects, at www.hccs.askonline.net. Typically, posted questions are answered by an HCC tutor or faculty within 24 hours (usually under 6 hours).

By purchasing a MyMathLab access code, students can also receive free tutoring from the Pearson Tutor Center at <http://digitalvellum.next.college.com/postindexmixed.html?courseId=5734065>. Students can get tutoring either over the phone, fax, email, or interactive web.

You may also find free tutoring at various HCCS campuses by going to Find-A-Tutor at <http://imc06.hccs.edu/alltutoring/FMPro?-db=alltutoring.fp5&-lay=info&-format=search.htm&-view>.

There are also several online math resources that you can find with an internet search. Some sample websites include:

<http://sophia.hccs.edu/~douglas.bump/math>
www.awl.com/tutorcenter/stinfo.html

www.khanacademy.org
www.Purplemath.com

www.harcourtcollege.com/math/nettutor/0030260264/

www.mhhe.com/barnett

Social Networking: DE students are encouraged to become a fan of [DE on Facebook](#) and follow [DE on Twitter](#). These social networking sites can provide a sense of community for the online learner, as well as up-to-date information and announcements related to HCC and DE.