



Mathematics Spring Branch Campus

Math 0409: Foundations of Mathematics
CRN 16962– Fall/ 2016

Spring Branch| 2:00 – 4:40 | Meeting days: T &TH

4 hour lecture course / 64 hours per semester/12# of weeks

Textbook: Introductory and Intermediate Algebra. Houston Community College
Developmental Math Courses 0409/0312 (Custom Edition). Pearson Learning Solutions:
Boston, 2015

ISBN 13: 978-1-323-15682-7.

MyMathLab Course ID: **Lawson93498**

Instructor: Marcia Lawson

Instructor Contact Information: Marcia.Lawson@Hccs.edu/ 281-674-4547

Office location and hours: N/A

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.

Core Objectives

Given the rapid evolution of necessary knowledge and skills and the need to take into account global, national, state, and local cultures, the core curriculum must ensure that students will develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in life. Through the Texas Core Curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world, develop principles of personal and social responsibility for living in a diverse world, and advance intellectual and practical skills that are essential for all learning. Students enrolled in this core curriculum course will complete a research project or case study designed to cultivate the following core objectives:

Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.

Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication.

Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

CALENDAR

A tentative schedule for the class is provided as a separate document.

Instructional Methods

Attendance to all classes (lecture session) is mandatory. Statistics show that students who maintain good attendance perform much better in the course; therefore, attendance is critical.

Student Assignments

Homework and quizzes/assessments will be submitted online through MyMathLab. Three (at least 3) major exams and the final exam will be proctored and taken in class/an HCC testing center in Houston, TX.

Final Exam Policy in Developmental Mathematics:

The following policy was adopted by Houston Community College regarding the system-wide

Final Examinations in developmental mathematics courses:

If a student scores less than a 50 on the Final Exam, then the student receives an **F** in the course. If a student scores at least 50 but less than 60 on the Final Exam, then the student earns a **D** or an **F** in the course (depending on the course average). If a student scores at least a 60 on the Final Exam, then the grades will be averaged in accordance with the grade calculation formula as stated on the student syllabus; i.e., the student earns an **A**, **B**, **C**, **D**, or **F** in the course.

Assessments

The assignment are weighted as follows;	Details	Percent Final Average
Major Exam (3 @100 points)	Three (3) proctored exams	30%
Quizzes	Class Quizzes	10%
Homework	MML Assignments	30%
Final Exam	Comprehensive Final Exam	30%
Total:		100%

HCC Policy Statement - ADA

Services to Students with Disabilities

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 Donna Price at 713.718.5165. 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.

HCC Policy Statement: Title IX

HCC is committed to provide a learning and working environment that is free from discrimination on the basis of sex which includes all forms of sexual misconduct. Title IX of the Education Amendments of 1972 requires that when a complaint is filed, a prompt and thorough investigation is initiated. Complaints may be filed with the HCC Title IX Coordinator available at 713 718-8271 or email at oie@hccs.edu.

Title IX of the Education Amendments of 1972 requires that institutions have policies and procedures that protect students' rights with regard to sex/gender discrimination.

Information regarding these rights are on the HCC website under Students-Anti-discrimination. Students who are pregnant and require accommodations should contact any of the ADA Counselors for assistance.

It is important that every student understands and conforms to respectful behavior while at HCC. Sexual misconduct is not condoned and will be addressed promptly. Know your rights and how to avoid these difficult situations.

Log in to www.edurisksolutions.org. Sign in using your HCC student email account, then go to the button at the top right that says Login and enter your student number.

HCC Policy Statement: Academic Honesty

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

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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.

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.

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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

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. 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.

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 online thru MyMathLab by the designated due dates and take all exams IN PERSON during the scheduled testing dates.

Grading Scale

90 - 100 = A

80 - 89 = B

70 - 79 = C

00 - 69 = F

Note: The instructor cannot assign a grade of "D", "IP" or "W"

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:

Free tutoring is available in library. The Learning Emporium at the Central Campus is available to all HCC students for tutoring in Mathematics, among other subjects. You may visit them in SJAC 384 or contact them at 713-714-6356 Additional help is also available 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). There are also several online math resources that you can find with an internet search. You may also find information on the Learning Web site accessible through your specific HCCS campus website.

EGLS₃ -- Evaluation for Greater Learning Student Survey System

At Houston Community College, professors believe that thoughtful student feedback is necessary

to improve teaching and learning. During a designated time, you will be asked to answer a short online survey of research-based questions related to instruction. The anonymous results of the survey will be made available to your professors and division chairs for continual improvement of instruction. Look for the survey as part of the Houston Community College Student System online near the end of the term. Visit www.hccs.edu/EGLS3 for more information.

Administration contact information

Developmental Math Courses

Chair of Dev. Math	Susan Fife	SE Campus	713-718-7241	Felix Morales Building, Rm 124
- Secretary	Carmen Vasquez	SE Campus	713-718-7056	Felix Morales Building, Rm 124
Dev. Math Assoc. Chair	Marisol Montemayo	SE Campus	713-718-7153	Felix Morales Building, Rm 124
Dev. Math Assoc. Chair	Jack Hatton	NE Campus	713-718-2434	Northline Building, Room 321

For issues related to your class, please first contact your instructor.

If you need to contact departmental administration, then contact the appropriate Associate Chair.

If further administrative contact is necessary, then contact the appropriate Department Chair.

GEOMETRY and SET OPERATIONS (Unit I – Appendix G & D)

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:

- Perimeter
- Area
- Circles
- Introduction to Set Operations

INTRO. TO REAL NUMBERS & ALGEBRAIC EXPRESSIONS (Unit II – Chapter 1)

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:

- Introduction to Algebra.
- The Real Numbers
- Addition of Real Numbers
- Subtraction of Real Numbers
- Multiplication of Real Numbers
- Division of Real Numbers
- Properties of Real Numbers
- Simplifying Expressions; Order of Operations

EXAMINATION 1: COVERS UNITS I & II

SOLVING EQUATIONS AND INEQUALITIES (Unit III – Chapter 2)

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:

- Solving Equations: The Addition Principle
- Solving Equations: The Multiplication Principle
- Using the Principles Together
- Formulas
- Applications of Percent
- Applications and Problem Solving
- Solving Inequalities
- Applications and Problem Solving with Inequalities

EXAMINATION 2: COVERS UNIT III

GRAPHS OF LINEAR EQUATIONS AND INEQUALITIES (Unit IV – Chapter 3)

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:

- Graphs Linear Equations
- More with Graphing and Intercepts
- Graphs Linear Inequalities

POLYNOMIALS: OPERATIONS (Unit V – Chapter 4)

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:

- Integers as Exponents
- Exponents and Scientific Notation
- Introduction to Polynomials

- Addition and Subtraction of Polynomials
- Multiplication of Polynomials
- Special Products
- Operations with Polynomials in Several Variables
- Division of Polynomials (Monomials Divisors Only)

EXAMINATION 3: COVERS UNITS IV, & V

POLYNOMIALS: FACTORING (Unit VI – Chapter 5)

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

- Introduction to Factoring (GCF and Grouping)
- Factoring Trinomials (of the type $x^2 + bx + c$ only)
- Factoring Trinomial Squares and Differences of Squares
- Factoring : A General Strategy

RATIONAL EXPRESSIONS AND EQUATIONS (Unit VII – Chapter 6)

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:

- Multiplication and Simplifying Rational Expressions
- Division and Reciprocals
- Rational Equations and applications (proportions only)

RADICAL EXPRESSIONS AND EQUATIONS (Unit VIII – Chapter 7)

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:

- Introduction to Radical Expressions

LINEAR, QUADRATIC, AND EXPONENTIAL MODELING (Unit IX – Chapter 8)

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:

- Linear modeling
- Quadratic modeling
- Exponential modeling

EXAMINATION 4: COVERS UNITS VI, VII, VIII, IX
