



Intermediate Algebra

COURSE OUTLINE FOR MATH 0314 CRN 12548 – Summer 2019

Codwell Campus Rm 202 / 8.00 am – 12.38 pm / (Saturdays Jun 3rd. – Aug. 11th.)

Textbook: Textbook: Introductory and Intermediate Algebra for Houston Community College; Margaret Lial; Pearson Custom

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Catalog Description: Intermediate Algebra: Topics include factoring techniques, radicals, algebraic fractions, absolute values, complex numbers, graphing linear equations and inequalities, quadratic equations, systems of equations, graphing quadratic equations and an introduction to functions. Emphasis is placed on algebraic techniques needed in order to successfully complete Math 1314: College Algebra. A Departmental Final examination must be passed with a score of 60% or more in order to pass this course.

Prerequisites: MATH 0309: Pass with “C” or better; or equivalent score on the placement exam or a score of 336-349 AND Intermediate Algebra Diagnostic Score 4-15 on TSIA

Credit: 3 hours credit (3 Lecture)

Audience: This course is for students who require state mandated remediation and are enrolled in a STEM Area of Study.

Course Goal

This course is intended to provide students enrolled in STEM areas of study with the preparation needed to successfully complete MATH 1314: College Algebra.

Course Student Learning Outcomes (SLO)

1. Define, represent, and perform operations on real and complex numbers.
2. Recognize, understand, and analyze features of a function.
3. Recognize and use algebraic (field) properties, concepts, procedures (including factoring), and algorithms to combine, transform, and evaluate absolute value, polynomial, radical, and rational expressions.
4. Identify and solve absolute value, polynomial, radical, linear and rational equations.
5. Identify and solve absolute value and linear inequalities.
6. Model, interpret and justify mathematical ideas and concepts using multiple representations.
7. Connect and use multiple strands of mathematics in situations and problems, as well as in the study of other disciplines.

Grade Composition

Attendance & Participation	10%
Connect Math Lab & HW	20%
2 Class Tests (10% pts @)	20%
Midterm Examination	25%
Final Examination	25%

Test Dates

Class Test #1	06/29/19
Midterm exam	07/06/19
Class Test #2	07/27/19

Class Calendar

Last Day to withdraw	N/A
Fourth of July Holiday	07/04/19
Last Day of Class	08/03/19
Final Examination	08/10/19
End of Semester	08/11/19

Learning outcomes

Students will:

1. add, subtract, multiply and divide polynomials
2. factor polynomials
3. multiply and divide rational expressions
4. simplify complex fractions
5. solve equations involving rational expressions
6. simplify expressions involving rational exponents
7. solve radical equations
8. add, subtract, multiply and divide complex numbers
9. solve quadratic equations by factoring, completing the square, quadratic formula and square root property
10. solve one-variable linear equations and inequalities
11. solve absolute value equations
12. solve absolute value inequalities
13. graph linear equations in two variables
14. find the slope of a line & write its equation
15. solve a 2×2 linear system of equations by substitution, elimination, and graphing
16. graph quadratic functions
17. solve word problems
18. recognize functional notation & evaluate functions

Course Outline: The lecture schedule contained in this outline is suggested for your usage. Instructors are free to modify the schedule to meet their needs. However, all the sections listed below must be covered. It is suggested that the even numbered problems be used as examples in class and allow the students to practice the odd numbered problems for homework.

**Approximate Time
TOPICS**

1 **LINEAR EQUATIONS, INEQUALITIES, AND APPLICATIONS** *(4 hours)*

Topics to be covered include: linear equations in one variable. The unit concludes with absolute value equations and inequalities.

Linear Equations in One Variable

Applications of Linear Equations

Linear Inequalities in One Variable

Absolute Value Equations and Inequalities

2 **LINEAR EQUATIONS, GRAPHS, AND FUNCTIONS** *(6 hours)*

Topics to be covered include: graphing lines in the coordinate plane, the slope of a line, equations of a line, relations and functions. The unit concludes with absolute value equation and inequalities, Functional Notation and Linear Functions.

Linear Equations in Two Variables

The Slope of a Line

Writing Equations of Lines

Introduction to Relations and Functions

Functional Notation and Linear Functions

RECOMMEND EXAMINATION 1: COVERS CHAPTER 1 & 2 *(1 to 1.5 hours)*

3 **SYSTEMS OF LINEAR EQUATIONS** *(1.5 hours)*

Topics to be covered include: solving systems by graphing, elimination, and substitution methods. This unit concludes with solving two by two systems of linear equation.

Systems of Linear Equations in Two Variables

4 **EXPONENTS, POLYNOMIALS, & POLYNOMIAL FUNCTIONS** *(5.5 hours)*

Topics to be covered include: integer exponents, polynomial functions. This unit concludes with multiplying, and dividing polynomials. Polynomial graphs are not covered.

Integer Exponents

Polynomial Functions

Multiplying Polynomials

Dividing Polynomials

5 FACTORING (7 hours)

Topics to be covered include: factoring out the GCF, factoring the difference of two squares, factoring the general trinomial, factoring the sum and difference of two cubes, and factoring by grouping. The unit concludes with solving quadratic equations by the zero factor property.

Greatest Common Factors; Factoring by Grouping

Factoring Trinomials

Special Factoring

A General Approach to Factoring

Solving Equations by the Zero-Factor Property

RECOMMEND EXAMINATION 2: COVERS CHAPTERS 3, 4, & 5 ***(1 to 1.5 hours)***

6 RATIONAL EXPRESSIONS AND FUNCTIONS (6 hours)

Topics to be covered include: rational expressions and functions; multiplying, dividing, adding and subtracting rational expressions; complex fractions. The unit concludes with equations involving rational expressions and applications of rational expressions. Graphing rational functions is not included. The unit concludes with Applications of Rational Expressions.

Rational Expressions and Functions; Multiplying and Dividing

Adding and Subtracting Rational Expressions

Complex Fractions

Equations with Rational Expressions and Graphs

Applications of Rational Expressions

7 ROOTS, RADICALS, AND ROOT FUNCTIONS (5 hours)

Topics to be covered include: Radical expressions and exponents; solving equations involving radical expressions. This unit concludes with complex numbers. Graphing radical functions is not included.

Radical Expressions and Graphs

Rational Exponents

The Distance Formula, and Circles

Solving Equations with Radicals

Complex Numbers

RECOMMEND EXAMINATION 3: COVERS CHAPTERS 6 & 7 ***(1 to 1.5 hours)***

8 QUADRATIC EQUATIONS, & FUNCTIONS (5 hours)

Topics to be covered include: solving quadratic equations by the square root property, completing the square, and the quadratic formula; vertical parabolas. The unit concludes with Applications of Quadratic Equations.

The Square Root Property and Completing the Square

The Quadratic Formula

More about Parabolas; Application (omit horizontal parabolas)

RECOMMEND EXAMINATION 4: CHAPTER 8 (1 to 1.5 hours)

REFVIEW FOR FINAL EXAMINATION: CHAPTERS 1 – 8 (1 to 1.5 hours)

COMPREHENSIVE FINAL EXAMINATION: CHAPTERS 1 – 8 (1 to 1.5 hours)

System-Wide Policies:

1. Each instructor must cover all course topics by the end of the semester. The final exam is comprehensive and questions on it are relevant to any of the course objectives.
2. Each student should receive a copy of the instructor's course syllabus during the first week of class.
3. A minimum of three in class exams and a comprehensive final departmental examination must be given. All students must take the final examination.
4. All major tests should be announced at least one week in advance.
5. The final examination must count for at least 25% to 40% of the final grade.
6. The following policy was adopted by Houston Community College regarding the system-wide Final Examinations in developmental mathematics courses:
 - a. Students who score less than 60% on the Final Examination or who have an overall course average less than 70% will be awarded a grade of "IP" or "F." The "IP" grade will be awarded to those students who took Math 0314 for the 1st time. The "F" grade will be awarded to those students who are repeating Math 0314.
 - b. Students who score 60% or higher on the Final Examination and whose overall course average is equal to or greater than 70%, will have their grades averaged and awarded a grade based upon the standard 10 point scale.

<u>AVERAGE</u>	<u>GRADE</u>
$90\% \leq \text{Final Average} \leq 100\%$	A
$80\% \leq \text{Final Average} < 90\%$	B
$70\% \leq \text{Final Average} < 80\%$	C
$0\% \leq \text{Final Average} < 70\%$	IP or F

Note: The grade of **D** is not allowed in developmental math courses. The grade of **IP** can be given only once in a course. The grade of **FX** is given when a student fails due to lack of attendance. A grade of **W** may be given on or before the official withdrawal date but not at the time of final grade submission.

7. Any review sheet will be comprehensive and the student should not feel that classroom notes, homework, and tests might be ignored in favor of the review sheet for any examination.
8. **No calculators are to be used on graded course work and in particular all examinations.**

Resource Materials:

Any student enrolled in Math 0314 at HCC has access to the Learning Resource Center (LRC) where they may get additional help in understanding the theory or improving their skills. The LRC is staffed with mathematics faculty and student assistants, and offers tutorial help, videos and computer-assisted drills.

Suggested Methods:

It is helpful to begin each class with questions concerning the material discussed and the assigned homework problems. It is suggested that lectures and new material be followed by allowing the students to work on examples in class. Students should be encouraged to work the review exercises at the end of each chapter and prompted to use the Learning Resource Center at their respective college.

Final Examination:

The final examination is departmental and consists of 33 multiple-choice problems. The problems cover only the material required in this course.

Americans with Disabilities Act (ADA):

<http://www.hccs.edu/district/students/student-handbook/>

Students needing accommodations due to a documented disability should contact the ADA counselor for their college as soon as possible. To all documented disabled students, all efforts will be made by the instructor to comply with the prescribed accommodation by the ADA counselor. It is recommended that you submit the ADA accommodation letter to the instructor ASAP. Submit an accommodation letter from the ADA office.

HCC Policy Statement - Students with disabilities

HCC strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please meet with a campus Abilities Counselor as soon as possible in order to establish reasonable accommodations. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Ability Services. It is the policy and practice of HCC to create inclusive and accessible learning environments consistent with federal and state law. For more information, please go to <http://www.hccs.edu/district/students/disability-services/>

Disability Services Contact Information

Central College 713-718-6164

Coleman College 713-718-7376

Northeast College 713-718-8322

Northwest College 713-718-5422 and 713-718-5408

Southeast College 713-718-7144

Southwest College 713-718-5910

Adaptive Equipment/Assistive Technology 713-718-6629 and 713-718-5604

Interpreting and CART services 713-718-6333

Campus Carry statement:

At HCC the safety of our students, staff, and faculty is our first priority. As of August 1, 2017, Houston Community College is subject to the Campus Carry Law (SB11 2015). For more information, visit the HCC Campus Carry web page at <http://www.hccs.edu/district/departments/police/campus-carry/>

HCC Policy Statement: Sexual Misconduct

Houston Community College is committed to cultivating an environment free from inappropriate conduct of a sexual or gender-based nature including sex discrimination, sexual assault, sexual harassment, and sexual violence. Sex discrimination includes all forms of sexual and gender-based misconduct and violates an individual's fundamental rights and personal dignity. The Director of EEO/Compliance is designated as the Title IX Coordinator and Section 504 Coordinator. All inquiries concerning HCC policies, compliance with applicable laws, statutes, and regulations (such as Title VI, Title IX, and Section 504), and complaints may be directed to:

David Cross

Director EEO/Compliance

Office of Institutional Equity & Diversity

3100 Main

Houston, TX 77266-7517 or Institutional.Equity@hccs.edu

Misuse of Electronic Devices in the Classroom

The use of electronic devices by students in the classroom is up to the discretion of the instructor. Any use of such devices for purposes other than student learning is strictly prohibited unless authorized as an appropriate ADA accommodation from the ADA Counselor.

Administration contact information

College - Level Math Courses

Chair of Math Jaime Hernandez	SW Campus 713-718-2477 Stafford, Scarcella, N108
Secretary Tiffany Pham	SW Campus 713-718-7770 Stafford, Scarcella, N108
Math Assoc. Chair Clen Vance	CE Campus 713-718-6421 San Jacinto Building, Rm 369
Math Assoc. Chair Ernest Lowery	NW Campus 713-718-5512 Katy Campus Building, Rm 112

Math Assoc. Chair Mahmoud Basharat NE Campus 713-718-2438 Codwell Hall Rm 105

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 Montemayor, SE Campus 713-718-7153 Felix Morales Bldg. Rm 124

Dev. Math Assoc. Chair Jack Hatton NE Campus 713-718-2434 Northline Bldg. Room 321

Dev. Math Assoc. Chair Hien Nguyen SE Campus 713-718-7241 Felix Morales Bldg. Rm 321

HCC Policy Statement: Academic Honesty

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 - Attendance

Class Attendance - It is important that you come to class! Attending class regularly is the best way to succeed in this course. 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. Students that accumulate four hours of absence will likely earn a zero in the weekly in-class practice exercises.

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 TWO (2) hours of instruction. The two 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

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. The last day to withdraw is shown on the first page of the outline.

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.