



## Mathematics

### North East College: North-line Campus

Math 0306: Fundamentals of Mathematics 1

CRN 40606 – SPRING / 2013

COD Rm. 312 | 11.00 am - 1.00 pm| MON & WEDs

3 hour lecture course / 48 hours per semester/ 14 weeks

Textbook: Prealgebra and Introductory Algebra (3<sup>rd</sup>. Ed) by Bittinger & Ellenbogen,

ISBN-13: 9780321331892

MyMathLab Course ID: N/A

**Instructor:** U. Charles Itauma

**Instructor Contact Information:** e-mail [Itauma\\_c@hotmail.com](mailto:Itauma_c@hotmail.com) office/department phone number 713-718-8049

**Office location and hours:** NOLN Campus Rm. 302, 8.00am – 8.50am

#### Course Description

Topics include fundamental operations in whole numbers, fractions and decimals, percents, ratios, proportions, descriptive statistics, and an introduction to the real numbers. All students who enroll in this course are expected to complete MATH 0308 and MATH 0312 in the following consecutive semesters before attempting their first college-level mathematics course (usually MATH 1314 College Algebra). A comprehensive Departmental Final Exam will be given in this course.

#### Prerequisites

SAT: Less than 450 ASSET: Scaled Score: Less than 41

COMPASS: Scaled Score: Less than 49 ACCUPLACER: Scaled Score: Less than 49

#### Course Goal

This course provides students with the basic arithmetical skills enabling them to proceed to the next level mathematics course. It is also designed to strengthen many of the skills that an individual must demonstrate or master in order to achieve college readiness. It is also intended for those students who are reasonably adept at performing the simple mathematical operations needed in every day affairs, but become quite confused when confronted with the same operations in the context of a mathematics class.

#### Course Student Learning Outcomes (SLO):

1. Correctly choose and apply the four basic arithmetic operations with whole numbers, decimals, fractions and signed numbers to estimate and solve application problems.
2. Apply “Proportional Reasoning” to solve related problems including ratios, rates, proportion, percent and conversions of units.
3. Interpret data from tables, pictographs, bar graphs, line graphs, and circle graphs.
4. Simplify algebraic expressions.

#### Learning outcomes

Students will:

- 1.1 add, subtract, multiply and divide whole numbers, understand the order of operations, and solve problems involving exponential notations.
- 1.2 solve problems by estimating and rounding.
- 1.3 add, subtract, multiply and divide integers.
- 1.4 find the least common multiples of two or more integers.
- 1.5 add, subtract, multiply and divide fractions.
- 1.6 add, subtract, multiply and divide with decimals and percent.
- 2.1 solve problems involving ratio and proportion.
- 3.1 read and interpret data from tables, pictographs, bar graphs, line graphs, and circle graphs.
- 4.1 simplify algebraic expressions.

#### CALENDAR

Last date for Administrative / Student withdrawal is 04/01/2013at 4.30pm

Martin Luther King Holiday: 01/21/2013

Spring Break: 03/11/2013 – 03/17/2013

Instruction ends: 05/05/2013

Final Examination: 05/06/2013 - 05/12/2013

Grades Due: 05/13/2013

Grades Available to students: 05/17/2013

**SECTION NUMBERS****TOPICS****1**      **WHOLE NUMBERS***(4 hours)*

This unit begins with a brief review of standard notation and the real number line. Included are sections on the meaning of digits in standard notation; converting between standard notation and expanded notation; converting between standard notation and word names; writing addition sentences that correspond to a given situation; adding whole numbers; using addition in finding perimeter; writing a subtraction sentence that corresponds to a situation involving decreasing; writing related subtraction sentence, subtracting whole numbers; rounding to the nearest ten, hundred, thousand; estimating sums and differences by rounding; use of ordering symbols; multiplying whole numbers; estimating products by rounding; use of multiplication in finding area; writing a division sentence that corresponds to a given situation; writing related multiplication sentences; dividing whole numbers; solving linear equations in one variable by trial and error; solving applied problems involving addition, subtraction, multiplication or division of whole numbers; writing and evaluation of exponential notation

- 1.1 Standard Notation**
  - 1.2 Addition**
  - 1.3 Subtraction**
  - 1.4 Rounding and Estimating; Order**
  - 1.5 Multiplication and Area**
  - 1.6 Division**
  - 1.7 Solving Equations**
  - 1.8 Applications and Problem Solving**
  - 1.9 Exponential Notation and Order of Operations**
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**2**      **INTRODUCTION TO INTEGERS AND ALGEBRAIC EXPRESSIONS** (8 hours)

This unit provides a comprehensive coverage of comparison of two integers, absolute value of an integer; finding integer opposites; adding, subtracting, multiplying and dividing integers without using a number line; application problems using addition and subtraction of integers; finding the product of three or more integers; simplifying powers of integers; using the rules for order of operations with integers; combining like terms; determining the perimeter of a polygon; using the addition principle to solve linear equations in single variable.

- 2.1 Integers and the Number Line**
- 2.2 Addition of Integers**
- 2.3 Subtraction of Integers**
- 2.4 Multiplication of Integers**
- 2.5 Division of Integers**

- 2.6 Introduction to Algebra and Expressions
- 2.7 Like Terms and Perimeter
- 2.8 Solving Equations

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*Recommend Examination I: Covers 1 and 2*

*(1 to 1.5 hours)*

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### **3 FRACTIONAL NOTATION: MULTIPLICATION AND DIVISION** *(4 hours)*

This unit addresses multiples of a number, divisibility tests for 2,3,5,6,9,10; factoring an integer; identifying prime numbers from 1 to 100; prime factorization of composite numbers; identification of numerator and denominator; simplifying fractions; problem solving using fractional multiplication; determining whether two fractions are equivalent; working with the reciprocal of a number; addition, subtraction, multiplication and division of fractions and mixed numbers; solving linear equations using the multiplication and division principles; an introduction to problem solving related to linear equations in a single variable.

- 3.1 Multiples and Divisibility
- 3.2 Factorizations
- 3.3 Fractions
- 3.4 Multiplication
- 3.5 Simplifying
- 3.6 Multiplying, Simplifying, and More with Area
- 3.7 Reciprocals and Division
- 3.8 Solving Equations: The Multiplication Principle

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### **4 FRACTIONAL NOTATION: ADDITION AND SUBTRACTION** *(6 hours)*

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This unit consists of finding the LMC of two or more numbers; converting from mixed numerals to fraction notation; converting from fractional notation to mixed numbers; addition and subtraction of fractions; evaluating expressions using mixed numerals; solving linear equations in a single variable containing fractions; addition, subtraction, multiplication and division of mixed numerals; using fractions in problem solving situations.

- 4.1 Least Common Multiples
- 4.2 Addition, Order and Applications
- 4.3 Subtraction, Equations, and Applications
- 4.4 Solving Equations: Using the Principles Together
- 4.5 Mixed Numerals
- 4.6 Addition and Subtraction Using Mixed Numerals: Applications
- 4.7 Multiplication and Division Using Mixed Numerals: Applications

## **5 DECIMAL NOTATION**

*(4 hours)*

This unit provides coverage of writing word names for decimal notation; converting between fractions and decimals; comparing decimal numbers; rounding and estimating decimals; addition, subtraction, multiplication and division of decimals, solving linear equations in a single variable that contain decimals. The unit concludes with by problem solving that requires an application of decimals.

- 5.1 Decimal Notation**
- 5.2 Addition and Subtraction with Decimals**
- 5.3 Multiplication of Decimals**
- 5.4 Division with Decimals**
- 5.5 More with Fractional Notation and Decimal Notation**
- 5.6 Estimating**
- 5.7 Solving Equations**
- 5.8 Applications and Problem Solving**

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## **6 PERCENT NOTATION**

*(6 hours)*

This unit covers finding fraction notation for ratios; giving the ratio of two different measures as a rate; determining whether two pairs of numbers are proportional; solving proportions; solving application exercises involving ratios; writing three kinds of notation for a percent; converting between percent notation and decimal notation; converting from fraction notation to percent notation; converting from percent notation to fraction notation; translating percent problems to percent equations; solving basic percent problems; translating percent problems to proportions; solving basic percent problems; solving applied problems involving percent; solving applied problems involving percent of increase or decrease; solving applied problems involving sales tax, percent, commission, discount, simple interest, compound interest.

- 6.1 Ratio and Proportion**
- 6.2 Percent Notation**
- 6.3 Percent and Fraction Notation**
- 6.4 Solving Percent Problems Using Percent Equations**
- 6.5 Solving Percent Problems Using Proportions**
- 6.6 Applications of Percent**
- 6.7 Sales Tax, Commissions, Discount, and Interest**

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**Recommend Examination III: Covers 5 and 6**

*(1 to 1.5 hours)*

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**7**

**DATA, GRAPHS, AND STATISTICS**

*(3 hours)*

This unit covers finding the average of a set of numbers; problem solving using averages; finding the median of a set of numbers; solving applications involving medians; finding the mode of a set of numbers; solving problems using modes; comparing two sets of data using their means; extracting and interpreting data from tables; extraction and interpreting data from pictographs; extracting and interpreting data from bar graphs; drawing bar graphs; extracting and interpreting data from bar graphs; drawing bar graphs; extracting and interpreting data from line graphs; drawing line graphs.

**7.1 Means, Medians and Modes**

**7.2 Tables and Pictographs**

**7.3 Bar Graphs and Line Graphs**

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**Recommend Examination IV: Covers 7**

*(1 to 1.5 hours)*

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**Review for Final Examination: Covers 1 Through 7**

*(4 hours)*

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**Comprehensive Final Examination: Covers 1 Through 7**

*(2 hours)*

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1. All major tests should be announced at least one week or the equivalent in advance.
2. The final exam must count for at least 25 to 40 percent of the final grade.
3. The final exam course average will be computed using a ten point scale (90–100 "A", 80–89 "B", 70–79 "C", 60–69 "D" below 60 "F").
4. Neither an open book nor a take home major test may be given. The Instructor is allowed to use his/her discretion.
5. Any review sheet should 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.
6. *No calculators are to be used on graded course work and in particular all examinations.*

## Test Schedule:

Test	Chapters Covered on Test	Date
Class Test #1	Chapters 1 and 2	03/09/2013
Class Test #2	Chapters 1, 2, 3 and 4	03/30/2013
Class Test #3	Chapters 1, 2, 3, 4, 5	04/13/2013
Class Test #4	Chapters 1, 2, 3, 4, 5, 6, 7, 8	04/27/2013
Final Exam	Comprehensive	05/11/2013

### Instructional Methods

The instructor will explain solution strategies through the lecture method with several examples of problem solution steps on the board. Students will constantly be encouraged to ask questions, particularly if they do not understand the concepts explained. Following the lecture session, student will work on solving several problems using the concepts previously taught in class.

### Student Assignments

Homework assignments will be given often, with a focus on the topics taught in class during the week. Homework assignments are due on the date specified in class, regardless of absence. **Late assignments will be assessed a late penalty of 50% of the total points.** There will be four class exams; one of which may be a take-home. **There will be no make-up exams except in the case of a pre-arrange absence or an emergency.**

### 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

All homework assignments are on a 100 point scale. Practice exercises and all lab exercises are also grade on a scale of 100. At the end of the course, homework assignments and the lab exercises will be averaged and each will constitute 25% of the total grade. Each in-class exam will be scored on a 100 point scale. The class exam scores will be averaged and it will constitute 25% of the course total grade. The final exam constitutes 25% of the final grade.

### 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 call 713.718.7910. To visit the ADA Web site, please visit [www.hccs.edu](http://www.hccs.edu) then click Future students, scroll down the page and click on the words Disability Information.

### 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.

All students are required to exercise academic honesty in completing their assignments and tests. Cheating involves deception for the purpose of violating testing rules. Students who improperly assist other students are just as guilty as students who receive assistance. A student guilty of a first offense will receive a grade of "F" on the quiz or test involved. For a second offense, the student will receive a grade of "F" for the course.

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 college'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 student's 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 means 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. **For a one-day per week class, the student is only allowed two unexcused absences, after which the student can be dropped administratively by the instructor. For a two-day per week class, the student is only allowed four unexcused absences, after which the student can be dropped administratively by the instructor.**

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 equal to and 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 been dropped from 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, for any reason you cannot complete this course, you will need to complete the withdrawal form and officially 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 04/01/2013 at 4.30PM**

**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**

**Students should not engage in disruptive activities while in the classroom. Any conduct that is deemed detrimental to the academic atmosphere, such as cell phone use or consistent talking during instructional delivery; will not be tolerated. Any student found guilty of such conduct by the instructor will be asked to leave the classroom until further notice. Please turn off your cell phones before you enter the 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**

**Grading Scale:**

Your final course grade is based on the following standard HCC scale.

Final Average	Final Course Grade
90 ≥ Average ≤ 100	A
80 ≥ Average < 90	B
70 ≥ Average < 80	C
60 ≥ Average < 70	D
Average < 60	F

A grade of “IP” (In Progress) will not be given in this course.

**A score of 50% or less in the final examination will result in an automatic “F” in the course.** However, if your final grade is a “D”, then you may be eligible to take the bridge course MATH 0106 instead of repeating the class. To determine eligibility, please contact the math department.

**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 not to be on the student desk during examinations. Usage of such devices during exams is expressly prohibited and will be considered cheating (see academic honesty section above).**

**Mathematics Bridge Course Statement for 0306:**

Any student who earns a grade of D in Math 0306 is qualified to enroll in the Bridge Course-Math 0106. Please visit with the instructor of your course for details.

**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 at the Learning Center on the 4<sup>th</sup> Floor of the North-line Campus. 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](http://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.