



Mathematics Your HCCS Campus

Math 2414: Calculus II

CRN 12733– Summer1, 2017

Online INSTRUCTION

4 hour lecture course / 64 hours per semester/ 5 weeks

Textbook: Calculus, 10th Edition, by Ron Larson & Bruce H. Edwards

ISBN-13: 978-1285057095

Web assign course key hccs 8246 8640

Instructor: Eunice Kallarackal

Instructor Contact Information: Eunice.kallarackal@hccs.edu 713 718 5578

Office location and hours: Stafford Campus, 10141 Cash Road, Stafford 77477, by appointment only

Course Description

Math 2414: Calculus II. Integral calculus including differentiation and integration of transcendental functions; techniques of integration; applications of integration; sequences and series; improper integrals. Infinite series, Taylor series, plane curves; parametric equations and polar coordinates.

Prerequisites

MATH 2413: passing with a “C” or better.

Course Goal

This course provides a detailed study of the logarithmic, exponential, and other transcendental functions, integration techniques with applications, L’Hopital’s rule, an introduction to infinite series and power series, as well as Taylor polynomials and approximations, plane curves, parametric equations, and polar coordinates.

Course Student Learning Outcomes (SLO):

1. Compute derivatives and antiderivatives of transcendental functions.
2. Use the concepts of definite integrals to solve problems involving area, volume, work, and other physical applications.
3. Use substitution, integration by parts, trigonometric substitution, partial fractions, and tables of anti-derivatives to evaluate definite and indefinite integrals.
4. Define an improper integral.
5. Apply the concepts of limits, convergence, and divergence to evaluate some classes of improper integrals.
6. Demonstrate the correct use of L’Hopital’s rule and various techniques for solving improper integrals
7. Determine convergence or divergence of sequences and series.
8. Use Taylor and MacLaurin series to represent functions.
9. Use Taylor or MacLaurin series to integrate functions not integrable by conventional methods.
10. Use the concept of polar coordinates to find areas, lengths of curves, and representations of conic sections.

Course Objectives:

Upon completion of this course, a student should be able to:

1. Define and use transcendental functions including logarithmic and exponential functions.
2. Compute derivatives and antiderivatives involving transcendental functions.
3. Apply integration to various applications.
4. Show various integration techniques.
5. Show correct usage of L’Hopital’s rule.
6. Describe and solve improper integrals.
7. Recognize and use infinite series.
8. Recognize and apply Taylor series to various problems.

- Demonstrate knowledge of plane curves and polar coordinates.

Course Outline

The instructor may choose to organize topics in any order, but the following material will be covered.

Chapter 5 – Logarithmic, Exponential, and Other Transcendental Functions

- 5.5 Bases other than e and Applications.
 - 5.6 Inverse Trigonometric Functions: Differentiation
 - 5.7 Inverse Trigonometric Functions: Integration
 - 5.8 Hyperbolic Functions
- (Sections 5.1 – 5.4 are optional.)

Chapter 7- Applications of Integration

- 7.1 Area of Region Between Two Curves
- 7.2 Volume: The Disk Method
- 7.3 Volume: The Shell Method
- 7.4 Arc Length and Surface of Revolution
- 7.5 Work (Optional, if time permit)
- 7.6 Moments, Centers of Mass, and Centroids (Optional, if time permit)
- 7.7 Fluid Pressure and Fluid Force (Optional, if time permit)

Chapter 8- Applications of Integration

- 8.1 Basic Integration Rules
- 8.2 Integration by Parts
- 8.3 Trigonometric Integral
- 8.4 Trigonometric Substitution
- 8.5 Partial Fractions
- 8.7 Intermediate Forms and L'Hopital's Rule
- 8.8 Improper Integrals

Chapter 9- Infinite Series

- 9.1 Sequences
- 9.2 Series and Convergence
- 9.3 The Integral Test and p-Series
- 9.4 Comparisons of Series
- 9.5 Alternating Series
- 9.6 The Ratio and Root Tests
- 9.7 Taylor Polynomial and Approximations
- 9.8 Power Series
- 9.9 Representation of Functions by Power Series
- 9.10 Taylor and Maclaurin Series

Chapter 10- Conics, Parametric Equations, and Polar Coordinates

- 10.2 Plane Curves and Parametric Equations
 - 10.3 Parametric Equations and Calculus
 - 10.4 Polar Coordinates and Polar Graphs
 - 10.5 Area and Arc Length in Polar Coordinates
 - 10.6 Polar Equations of Conics and Kepler's Laws
- (Section 10.1 is optional.)

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.

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.

Exams and Quizzes:

There are three major exams (taken online) and a comprehensive final exam taken on campus. Exams may be in webassign or on eagle online.

All exams except the final will be online. If you perform below your expectations or fail any exam, please set-up a conference with the instructor as soon as possible.

There is no Make-up exam. However I will drop your lowest exam grade and replace it with the final exam grade.

If you are taking class outside of Houston, You have to arrange a proctor through the distance education department. You have to do that at least two weeks prior to the exam. More information is posted in eagle on line.

CALENDAR (subject to change)

Exam 1 (Chapter5, 8.1): June 12, 2016

Exam 2 (Chapter 7 and Chapter 8): June 21, 2016

Exam 3 (Chapter 9&10): June 30, 2016

Final Exam (Comprehensive, chapters 5-10): has to be taken either on July 6 @3100Main, Houston 77002, the system building or on July 7, Central campus 1300Holman,

Note that Final exam has to be taken on campus. No Exceptions.

Instructional Methods

Instruction is done through Canvas and **Web assign**. Web assign is an online program that you have to use for mandatory homework. You have to purchase an access code to access the homework. When you purchase the access code you can access the text book also. Web assign has videos of lessons. The course key for registering to do the homework is hccs 8246 8640
Remember this is an online class. You have to be diligent about the work you have to do. You cannot procrastinate. Calculus2 is really a challenging but interesting class

Assessments

Your grade will be calculated as follows

Homework 20%, 3 exams 45%, Final exam 35%

There is no makeup. However I will drop the lowest exam grade and replace it with the final exam grade. If you miss an exam that exam grade will be 0 and will be replaced by the final exam grade. Please note that you cannot miss more than one exam.

Final Exam is mandatory. If you do not take the final you fail the class. There is no make up for the final.

HCC Policy Statement - ADA

Students with disabilities

Houston Community College is dedicated to providing an inclusive learning environment by removing barriers and opening access for qualified students with documented disabilities in compliance with the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act. Ability Services is the designated office responsible for approving and coordinating reasonable accommodations and services in order to assist students with disabilities in reaching their full academic potential. In order to receive reasonable accommodations or evacuation assistance in an emergency, the student must be registered with Ability Services.

If you have a documented disability (e.g. learning, hearing, vision, physical, mental health, or a chronic health condition), that may require accommodations, please contact the appropriate Ability Services Office below. Please note that classroom accommodations cannot be provided prior to your Instructor's receipt of an accommodation letter and accommodations are not retroactive. Accommodations can be requested at any time during the semester, however if an accommodation letter is provided to the Instructor after the first day of class, sufficient time (1 week) must be allotted for the Instructor to implement the accommodations.

Ability Services Contact Information

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|-------------------|--------------|--------------|
| Central College | 713-718-6164 | |
| Coleman College | 713-718-7376 | |
| Northeast College | 713-718-8322 | |
| Northwest College | 713-718-5422 | 713-718-5408 |
| Southeast College | 713-718-7144 | |

| | | |
|---|--------------|--------------|
| Southwest College | 713-718-5910 | |
| Adaptive Equipment/Assistive Technology | 713-718-6629 | 713-718-5604 |
| Interpreting and CART services | 713-718-6333 | |
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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 ois@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

Any kind of cheating will result in a course grade of F.

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. 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.

Since this is an online class, the work you do on webassign tells me about your participation.

If you are not attending class, you are not learning the information. **Students may be dropped from a course if you do not participate in class by doing work work in web assign . If you do not sign up for web assign by June 8 you will be dropped from class .**

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** do so **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.** 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 for Summer1 2017 is 6/26/2017**

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

I want my students to be respectful of other students. During discussion in web assign or eagle online be careful about what you communicate and how you communicate.

Use of Camera and/or Recording Devices

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

I expect my students to sign up for homework the first day of class itself. Web assign offers a free trial period which helps you to sign up for the homework the first day itself. After June 9, you will not be able to sign up for homework as I will be closing the enrollment on June 9.

Do the assignments regularly. Homework for all sections covered in an exam is due the day before the exam.

Grading Scale

90 - 100 = A

80 - 89 = B

70 - 79 = C

60 - 69 = D

Below 60 = F

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 the final exam

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

Calculators:

Only non-programmable non graphing calculators are allowed on the final.

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:

Any student enrolled in Math 2414 at HCCS has access to the Academic Support Center where they may get additional help in understanding the theory or improving their skill. The Center is staffed with mathematics faculty and student assistants, and offers tutorial help. A Chapter Tests preparation video CD comes with the text.

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

College - Level Math Courses

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|-------------------|-----------------|-----------|--------------|------------------------------|
| 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 | 713-718-6448 | San Jacinto Building, Rm 369 |

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|-------------------|------------------|-----------|--------------|------------------------------|
| 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

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|------------------------|-------------------|-----------|--------------|--------------------------------|
| 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.