Mathematics

Northwest College – Katy Campus

Math 2414: Calculus III

13554 – Spring 2017

Room 228D| 2:00 – 4: 00 pm | Tue and Thu

4 hour lecture course / 64 hours per semester/

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

ISBN-13: **978-1285057095**

Instructor: Sukhlal Ramharack

Instructor Contact Information:

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Office Number: 713-718-5525
Office : 215A
Office Hours : MW : 10:00 a.m.--11:00 a.m. & MW : 5:00 p.m. – 5:30 p.m. & TuTh: 11:00 a.m. – 12: 00 p.m.
Department Number: 713-718-5511

E-Mail: sukhlal.ramharack@hccs.edu

Web Page: http://learning.hccs.edu/faculty/sukhlal.ramharack

Additional Resources: www.khanacademy.org
www.wolframalpha.com
www.mathway.com

Course Description

Math 2415: Calculus III. A survey of advanced topics in calculus including vectors and vector-valued functions, partial differentiation, Lagrange multipliers, multiple integrals, Jacobians, divergence and Stokes' theorems.

Prerequisites

Math 2414: Pass with a "C" or better

Course Goal

This course provides a detailed study of vector-valued functions with space geometry. Functions of several variables and Lagrange multiplers. Multiple integration with applications, as well as integration in polar, spherical, and cylindrical coordinates. Change of variables and Jacobians. And finally, vector analysis that includes Green's theorem, Divergence theorem, and Stokes' theorem.

Course Student Learning Outcomes (SLO):
1. Understand vector functions, operations with them (including differentiation and integration), and their application to motion in space
2. Understand real functions of several variables, operations with them (including differentiation and integration), optimization of multivariable functions, and their application to physical problems
3. Compute multiple integrals in Cartesian, polar, cylindrical, and spherical coordinates, and apply multiple integrals to physical problems;
4. Solve problems using the Fundamental Theorem of Line Integrals, Green's Theorem, the Divergence Theorem, and Stokes' Theorem.

Learning outcomes
Students will:
1.1 apply calculus to vectors and vector-valued functions
2.1 describe and use partial differentiation
2.2 apply Lagrange multipliers to solve problems.
3.1 solve multiple integrals.
3.2 find the Jacobian using determinant notation.
4.1 apply Green's theorem to evaluate line integrals around a bounded area.
4.2 apply the Divergence theorem and Stokes' theorem to specific problems.

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.

Instructional Method:
As an instructor, I want all my students to succeed in their endeavors. In order for one to succeed in this and any class two things will be expected of you (i) that you are prepared and (ii) that you are consistent in doing your homework. (i) Preparation requires that you have the relevant pre-requisite for the course. It also means that you attend class regularly you read and re-read as necessary the previous class material so that you are ready for the new material. I am always available to my students so if you have any questions please feel free to speak with me or e-mail me as necessary. (ii) Homework. In order to be successful in this course requires a level of commitment from you to do your home consistently. As the old adage goes "Math is not a spectator sport." In order to be successful in math requires that you DO math. This may mean that you may need to work on your homework daily, if there is a concept that you do not understand, you go to (i) tutoring , (ii) you seek assistance from your fellow classmates, (iii) you go online to valid websites to get help with understanding or reinforcing certain concepts and (iv) seek your professor's assistance.

Assessments

Grading Policy:	**90 – 100**	**A**
	80 – 89	**B**
	70 – 79	**C**
	60 – 69	**D**
	Below 60	**F**

Evaluation:	**Four Exam (15% each)**	**60%**
	Final Exam	**25%**
	Homework	**15%**
	Total	**100%**

Final Grade = 0.60E + 0.25FE + 0.15HW

Tests:

Approximately 4 in-class major exams and a **comprehensive** final will be given. Absence on a test date is severely discouraged! If you know that you will miss an exam, you should contact me as soon as possible. You should be able to provide documentation if asked as to the reason for your absence. If an exam is missed, then the exam must be made up in the Testing Center prior to the return of said exam to the students in class. Missing an exam is severely discouraged, as the make-up exam will be significantly more difficult. ***NO exam will be "dropped" or replaced.*** Extra credit if given will not be added to make up exams. The exams are closed-notes, closed-book non-collaborative exams. The exams will definitely take place at the dates prescribed in the included class schedule at the scheduled exam times (barring an event that closes the college), so please plan your schedule accordingly.

Homework:

Homework for this class will be two fold. (1) Most homework will be completed online using Webassign.net (10 %) and (2) Homework that will be turned in (5%). The format will be two to four problems from each section of the textbook on the homework assignment sheet. Homework will be taken almost every day at the start of class and will **not be** accepted late.

Most homework will be completed online using Webassign.net

Tech Support : https://webassign.com/support/student-support/

Phone Support

Toll free: 800.955.8275
Local: 919.829.8181

Student Support Hours

M–Th: 9 a.m.–10 p.m. ET
Fri: 9 a.m.–8 p.m. ET
Sun: 11 a.m.–8 p.m. ET

Course :	**Math 2415 Calculus III Spring 2017, section 13554**
Class Key:	**hccs 3211 2668**
Calculator:	A one – line scientific calculator is recommended for this course. Please see your professor concerning its use.
Software :	**Maple 18 is recommended**

The sharing of calculators or any other electronic device during examinations is strictly prohibitedDuring exams all unapproved calculator or electronic device should be put away and should not be visible. If an unapproved calculator or electronic device is found in your possession after the examination has begun, then you will be dismissed and you will be assigned a score of zero (0).

Electronic Devices Policy

Any device having a QWERTY keypad arrangement similar to a typewriter or keyboard or other typewriter- like keyboards or keypads are prohibited. Devices with communication capabilities are prohibited. These include but are not limited to cameras; cell phones; desktop, hand-help, laptop, and palmtop computers; databanks; data collectors; organizers; pagers or beepers; PDAs; radios; headsets; tape players; portable fax machines; reproduction equipment; electronic dictionaries; electronic translators; and recorders

CALENDAR

A tentative schedule for this class will be provided independent of this syllabus.

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

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	

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.

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

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. Attendance is key for your success. After 12.5% absences (3) the instructor can withdraw the student unless notified that there are extenuating circumstances.

Final day for students withdrawing is April 3rd 2017

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

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

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

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.

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

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 **Room 150J at the Katy Campus.** Additional help is also available through and through Student Support Services. Students can get free assistance, 24 hours a day, 7 days a week, in Math, English and other subjects, at www.hccs.askonline.net. Typically, posted questions are answered by an HCC tutor or faculty within 24 hours (usually under 6 hours). 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.

EGLS$_3$ -- 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

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	Roderick McBane	CE Campus	713-718-6644	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 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