



Mathematics HCCS Central College

Math 2415-0022: Calculus III

CRN 19928 – Spring Semester/2019

San Jacinto 251 | 8:00 – 9:50 AM | Tue and Thur

4 hour lecture course / 64 hours per semester/ 16 weeks

Textbook: Calculus, 11th Edition, by Ron Larson & Bruce H. Edwards

ISBN-13: 978-1337275347

Instructor: Christopher N. Tiftickjian, M.S., M.A.

Instructor Contact Information: christopher.tiftickjian@hccs.edu

713-718-6619

Office location and hours: SJAC 369 10:00 – 11:00 AM Mon. through Thurs., 1:00 – 2:00 AM Mon.

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: A grade of a C or better

Textbook Options for: Calculus, 11th Edition, by Ron Larson & Bruce H. Edwards

Loose-leaf Textbook + WebAssign Multi-Term Printed Access Card: Edwards ISBN-13: 978-1337604741

Hardbound Textbook + WebAssign Multi-Term Printed Access Card: Edwards ISBN-13: 978-1337604758

Hardbound Textbook: ISBN-13: 978-1337275347

WebAssign Multi-Term Printed Access Card: ISBN-13: 978-1285858265

Calculator Policy

The use of a single line scientific calculator is permitted in this course. Calculators with graphing capabilities, e.g., TI-83 or TI-84, and calculators with built in computer algebra systems, e.g., TI-89 or TI – Inspire, are prohibited. All internet capable devices are banned during exams.

Course Goal

This course provides a detailed study of vector-valued functions with space geometry. Functions of several variables and Lagrange multipliers. 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. Perform calculus operations on vector-valued functions, including derivatives, integrals, curvature, displacement, velocity, acceleration, and torsion.
2. Perform calculus operations on functions of several variables, including partial derivatives, directional derivatives, and multiple integrals.
3. Find extrema and tangent planes.
4. Solve problems using the Fundamental Theorem of Line Integrals, Green's Theorem, the Divergence Theorem, and Stokes' Theorem.
5. Apply the computational and conceptual principles of calculus to the solutions of real-world problems.

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.

CALENDAR

| Calendar Date | Tentative Course Activity |
|---------------|----------------------------|
| 15-Jan | Intro, Section 11.1 |
| 17-Jan | Sections 11.2, 11.3 |
| 22-Jan | Sections 11.3, 11.4 |
| 24-Jan | Sections 11.5, 11.6 |
| 29-Jan | Sections 11.6, 11.7 |
| 31-Jan | Sections 12.1, 12.2 |
| 5-Feb | Sections 12.2, 12.3 |
| 7-Feb | Sections 12.4, 12.5 |
| 12-Feb | Regular Exam # 1 |
| 14-Feb | Sections 12.5, 13.1 |
| 19-Feb | Sections 13.2, 13.3 |
| 21-Feb | Sections 13.3, 13.4 |
| 26-Feb | Sections 13.5, 13.6 |
| 28-Feb | Sections 13.6, 13.7 |
| 5-Mar | Sections 13.8, 13.9 |
| 7-Mar | Sections 13.9, 13.10 |
| 12-Mar | Spring Break |
| 14-Mar | Spring Break |
| 19-Mar | Sections 14.1, 14.2 |
| 21-Mar | Regular Exam # 2 |
| 26-Mar | Sections 14.2, 14.3 |
| 28-Mar | Sections 14.4, 14.5 |
| 2-Apr | Sections 14.5, 14.6 |
| 4-Apr | Sections 14.7, 14.8 |
| 9-Apr | Sections 14.8, 15.1 |
| 11-Apr | Section 15.2 |
| 16-Apr | Section 15.3 |
| 18-Apr | Section 15.4 |
| 23-Apr | Regular Exam # 3 |
| 25-Apr | Section 15.5 |
| 30-Apr | Section 15.6 |
| 2-May | Sections 15.7, 15.8 |
| 7-May | No Class Meeting |
| 9-May | Final Exam; 8:00 - 9:50 AM |

Instructional Methods

Course meetings will consist of lectures, structured discussions, and problem solving. It is expected that each student will attend every class meeting and will behave in an attentive and respectful manner. No student is to engage in any activity that is distracting to themselves, the instructor, or any other students in the classroom. Homework will be assigned weekly through the learning web, and will be collected the following week. It is to be completed using pencil/pen and paper and arranged in an organized fashion, stapled if necessary, for grading.

Student Assignments

Each student's grade will be composed of homework assignments, grades for three regular exams, and the score achieved on the departmental final exam. I will drop the lowest two homework scores for each student at the end of the semester. Homework assignments count for %12 of the course grade, regular exams count for %21 each, and the final exam counts for %25 of the course grade. These weights mean that your final exam grade will be calculated with the formula

$$\text{Course Grade} = (0.12 \times \text{Homework Average}) + (0.63 \times \text{Regular Exam Average}) + (0.25 \times \text{Final Exam})$$

No late homework will be accepted. Make-up exams and "re-takes" will not be provided in this class. As a general rule, I allow the final exam score to count in place of the lowest regular test grade, provided this is beneficial to the student. In the event that a single regular exam, your final exam grade will replace that one exam grade.

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/support-services/disability-services/>

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:

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. Title IX prohibits discrimination on the basis of sex-including pregnancy and parental status-in educational programs and activities. If you require an accommodation due to pregnancy please contact an Abilities Services Counselor. 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

Phone number: 713-718-8271

Basic Needs Security Statement

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable us to provide any resources that HCC may possess.

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/departments/police/campus-carry/>

HCC Policy Statement: Academic Honesty

Cheating is a most serious offense. I will punish any student caught cheating at my discretion, up to and including summarily assigning a grade of F for the course. I may refer offending students to their appropriate deans for further action.

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 in this course is mandatory and checked daily. Students accumulating four (4) or more absences may be summarily dropped for nonattendance.**

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. **The last day to withdraw 01 April 2019.**

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 mandate that a respectful and attentive atmosphere be maintained at all times. Distractions to your learning and the learning of other students should be minimized, including the use of smartphone, tablet, and laptop devices. Failure to maintain classroom discipline and respect may warrant an invitation to leave class for the day.

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.

Instructor Requirements

It is expected that you will attend class, be punctual and respectful to all others in the classroom. I expect that you will stay current with your homework assignments and will have read any relevant source material from the assigned textbook. In a three credit hour course, you can fully expect to spend between 6 and 9 hours each week completing required tasks and studying appropriate materials.

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 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:

The HCC Tutoring Centers provide academic support to our diverse student population by creating an open atmosphere of learning for all students enrolled at HCC. Using a variety of tutoring techniques, we assist students across academic disciplines, addressing their individual needs in a constructive, safe, and welcoming environment. Our emphasis is on maximizing academic potential while promoting student success and retention. We are committed to helping students achieve their educational, personal, and career goals by empowering them to become confident, independent, lifelong learners.

Tutoring for individual subjects is offered at specific times throughout the week on various campuses. There is no need to make an appointment. If you need a tutor, please refer to our website: <http://www.hccs.edu/findatutor> for times and locations. For more information about tutoring at HCC, please go to <http://www.hccs.edu/tutoring>.

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 <https://hccs.upswing.io/>. Typically, an HCC tutor or faculty answers posted questions within 24 hours (usually under 6 hours). In addition, you can find several online math resources through 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 | Susan Fife | SW Campus | 713-718-7241 | Stafford, Scarcella, N108 |
| - Admin. Assistant | Tiffany Pham | SW Campus | 713-718-7770 | Stafford, Scarcella, N108 |
| - Admin. Assistant | Christopher Cochran | SW Campus | 713-718-2477 | Stafford, Scarcella, N108 |
| Math Assoc. Chair | Jaime Hernandez | CE Campus | 713-718-7772 | San Jacinto Building, Rm 369 |
| Math Assoc. Chair | Ernest Lowery | NW Campus | 713-718-5512 | Katy Campus Building, Rm 112 |

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|-------------------|------------------|-----------|--------------|---------------------|
| 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 | Marisol Montemayor | SE Campus | 713-718-7153 | Felix Morales Building, Rm 124 |
| - Admin. Assistant | Carmen Vasquez | SE Campus | 713-718-7056 | Felix Morales Building, Rm 124 |
| Dev. Math Assoc. Chair | Hien Nguyen | SE Campus | 713-718-2440 | 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.