

UH Core Curriculum Supplement

Academic Unit / Office NSM/Mathematics

Catalog Year of Implementation 2020-2021

Course (Prefix / Number) MATH / 1432

Course Title Calculus II

PROPOSAL ACTION TYPE:

- Add existing UH course to Core
- Add new UH Course to Core, see Course Proposal
- Revision current Core, switch Component Area
- Revision current Core, substantive change (e.g. prerequisites, course requirements, course level, restricted enrollment)

SYLLABUS ATTACHED

Core Proposal Rationale and Justification for adding/revising the course?

Please provide a rationale for including, or continuing to include, this course in the UH Core Curriculum:

This is a standard second course in differential and integral calculus. This proposal does not affect the content of MATH 1432, so we believe this course should continue to serve as a core Mathematics and Math/Reasoning course.

Following the "C- rule" implemented by many public universities in Texas (see below), we propose to add a C- or better grade requirement for MATH 1431 credit used as a prerequisite for MATH 1432. Specifically, we propose to modify the prerequisite for MATH 1432 as follows: "Credit for MATH 1431 with a grade of C- or better."

Since a student cannot earn transfer credit for a course with a grade below C-, this requirement would ensure that transfer and native students are held to the same prerequisite standards.

The primary rationale for this proposal is that students who pass MATH 1431 with a grade below C- (D+, D, or D-) have only a 26% chance of passing MATH 1432 with a grade of C- or above. In other words the DWF rate for this group of students is approximately 74%. This estimate is based on regular semester (Fall and Spring) enrollments between 2015 and 2018. (A summary of this data is included in our proposal.)

We think that this new prerequisite will create a GPA safeguard that will help prevent a pattern of poor grades for underprepared students who attempt this freshman-level calculus sequence.

Based on the data referenced above a "C- rule" would have affected only 4.4% of students (380 out of 8549) who enrolled in MATH 1432 between 2015 and 2018 (which amounts to 7% of students (380 out of 5399) who completed the prerequisite, MATH 1431, at University of Houston during this period). Moreover, students with a grade of D in MATH 1431 would still be able to enroll in non-math courses which require MATH 1431 as a prerequisite. These points help mitigate the concern that a "C-rule" could hold some students back.

The list of Texas institutions which currently implement a "C- rule" for Calculus 2 include: UT Austin (MATH 408D), Texas A&M University (MATH 172), UT Arlington (MATH 2425) Texas State University (MATH 2472), University of North Texas (MATH 1720), Texas Tech University (MATH 1452), UT San Antonio (MAT 1224), UT Dallas (MATH 2414), UT Rio Grande Valley (MATH 2414), UT El Paso (MATH 1312)

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COURSE LEVEL?

Is the course lower-division (1000/2000 level)? NO YES

If upper division (3000/4000 level) please provide a rationale for including the course in the UH Core Curriculum.

STEP 1: IDENTIFY THE FOUNDATION CORE COMPONENT AREA for this course

If the course is intended to be listed under Math/Reasoning or Writing in the Disciplines it must first qualify for Core under one of the Foundation Component Areas and under Step 2.

SELECT ONE	FOUNDATION COMPONENT AREA	REQUIRED CORE OBJECTIVES (see THECB Core objectives)					
		CT	COM	EQS	TW	SR	PR
<input type="checkbox"/>	COMMUNICATION	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
<input type="checkbox"/>	MATHEMATICS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
<input type="checkbox"/>	LIFE & PHYSICAL SCIENCES	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<input type="checkbox"/>	LANGUAGE, PHILOSOPHY, & CULTURE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	CREATIVE ARTS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	AMERICAN HISTORY	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	GOVERNMENT/POLITICAL SCIENCE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	SOCIAL & BEHAVIORAL SCIENCES	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	

KEY : **CT**= Critical Thinking , **COM** = Communication, **EQS** = Empirical and Quantitative Skills

PR= Personal Responsibility, **SR** = Social Responsibility, **TW** = Team Work

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STEP 2 : If not selecting a course for Core Math/Reasoning or Writing in the Disciplines proceed to Step 3.

IDENTIFY THE COMPONENT AREA OPTION for this course – Requires Step 1 & Step 2

If the course is intended to be listed under Math/Reasoning or Writing in the Disciplines it must first qualify for Core under one of the Foundation Component Areas identified in Step 1. Identify the Foundational Component Area and required Core Objectives.

SELECT ONE	UH Component Area Options:	Meets definition of Foundational Component Area (FCA) identified in Step 1	Double-List? *	CT	COM	EQS	TW	SR	PR
<input checked="" type="checkbox"/>	MATH/REASONING	<i>MATHEMATICS</i> <i>in Step 1 must select Mathematics</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
<input type="checkbox"/>	WRITING in the DISCIPLINES	<i>Identify Foundational Component Area:</i> <i>Select One:</i> <i>& select additional objective(s) that align with the associated foundation component area selected in Step 1 (e.g. Language, Philosophy, Culture select SR, PR)</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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*DOUBLE –LIST?

UH Core course typically serve under only one component area.

Indicate request for the course be evaluated to also be listed in the Catalog under the Foundational Component Area (for example, *Language, Philosophy, Culture & Writing in the Disciplines*).

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STEP 3: CORE OBJECTIVE ASSESSMENT

Select the applicable required Core Objectives for the associated Foundation Component Area.

For each required Core objective identify:

- How students will demonstrate achievement of the objective in the course (e.g. critical thinking, communication)
- What course assignment that may be used to assess student performance related to the objective. *An assignment may serve as a tool to assess more than one Core Objective.*

Select related required Objectives from Step 1 & 2)	Core Objectives	How will students demonstrate achievement of the objective in the course?	Assignment to be Assessed (e.g. Essay #2, Project, Test #3)
<input checked="" type="checkbox"/>	CT <i>*required for all courses</i>	This is a standard second course in differential and integral calculus with an emphasis on problem solving. Students develop critical thinking skills through the process of analyzing mathematical statements, synthesizing information and applying valid mathematical reasoning, and deciding the appropriate rules or methods to apply in a given mathematical context. Students demonstrate proficiency in these skills through a variety of assessments including homework assignments, quizzes, and tests.	Tests 1-4, Final Exam, Homework, Online Quizzes, Lab Quizzes, Poppers
<input checked="" type="checkbox"/>	COM <i>* required for all courses</i>	To effectively communicate quantitative information, students must develop a greater vocabulary and understanding of the language of mathematics. In particular, this course develops vocabulary related to limits, derivatives, and integrals of functions which are fundamental in many fields of science and engineering. Students develop written communication skills by learning to express mathematical quantities and statements in a clear and consistent way using proper notation. Students develop oral communications skills through in-class discussions and group work. Students demonstrate proficiency in these skills through a variety of assessments including written homework assignments, free response test questions, and lab/recitation work.	Free Response Homework and Test Questions, Lab/Recitation Work and Discussions
<input type="checkbox"/>	EQS <i>*required for Math/Reasoning</i>	Students develop empirical and quantitative skills through the process of evaluating and graphing	Tests 1-4, Final Exam, Homework,

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		<p>functions, analyzing solutions of equations and inequalities, and evaluating limits, derivatives, and definite integrals to obtain information about the rate of change or the net change of a given quantity. Students demonstrate proficiency in these skills through a variety of assessments including homework assignments, quizzes, and tests.</p>	<p>Online Quizzes, Lab Quizzes, Poppers</p>
<input type="checkbox"/>	TW		
<input type="checkbox"/>	SR		
<input type="checkbox"/>	PR		

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MATH 1432 - COURSE SYLLABUS

YEAR COURSE OFFERED: 2019-2020

SEMESTER COURSE OFFERED: FALL

DEPARTMENT: MATH

COURSE NUMBER: 1432

NAME OF COURSE: Calculus II

PREREQUISITES: MATH 1431

TEXTBOOK

The textbook, online quizzes, and additional help materials will be made available by logging into CourseWare at <http://www.casa.uh.edu>. The first portion of these materials are freely available for the first two weeks of class. **Students are required to purchase an access code to access the learning materials by the end of the second week of school. Access code can be purchased at UH Book Store. Note that if you order the access code online, you will receive it in the mail (which might take several days). If you don't enter the code by the deadline stated on CASA, you will lose access to CASA temporarily – until you enter the code. If students miss assignments during the no access period, they should not expect to have make up options for those assignments.**

COURSE OBJECTIVES FOR CALCULUS II

Upon successful completion of this course, students will understand and be able to apply the ideas of differential and integral calculus to elementary functions, polar coordinates and parametric curves. They will develop skill in techniques and further applications of integration. They will understand convergence of sequences and series and be able to test for convergence. They will understand and appreciate the importance of power series and Taylor polynomials. Students will be able to use graphical information and symbolic expression simultaneously in solving mathematical problems. They will be able to translate ordinary language descriptions of problems into mathematical expression, derive solutions by rigorous mathematical methods, interpret their results, and explain them.

This course has a corresponding recitation that does not have a separate grade. Lecture is 3 hours per week and Lab (recitation) is also 3 hours. The lab hours are an extension of lecture and an opportunity to work on homework and practice extra problems to prepare you for exam day. These lab sessions are mandatory and are a portion of your overall grade calculation.

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COMMUNICATION via EMAIL

Your instructor will be sending class emails using PeopleSoft; you are responsible for checking your UH email. Per UH Policy, notices properly addressed and so sent (for example, via PeopleSoft) shall be presumed to have been received by the student. Thus, you are responsible for the content in emails sent to your UH account, regardless if your external (non-UH) email provider filters or blocks them.

When emailing your instructor, it is recommended that you use a professional email address and include the course name on the subject line so that your instructor can address your questions accordingly. Please read this link for more on communication via email: [EMAIL ETIQUETTE](#)

HONOR PRINCIPLE

University of Houston students are expected to adhere to the Academic Honesty Policy as described in the UH Undergraduate Catalog. "Academic dishonesty" means employing a method or technique or engaging in conduct in an academic endeavor that contravenes the standards of ethical integrity expected at the University of Houston or by a course instructor to fulfill any and all academic requirements.

Academic dishonesty includes, but is not limited to, the following: *Plagiarism; Cheating and Unauthorized Group Work; Fabrication, Falsification, and Misrepresentation; Stealing and Abuse of Academic Materials; Complicity in Academic Dishonesty; Academic Misconduct*. Refer to [UH Academic Honesty website](#) and the UH Student Catalog for the definition of these terms and university's policy on Academic Dishonesty. Anyone caught cheating will receive sanctions as explained on these documents and will be reported to the department for further disciplinary action. The sanctions for confirmed violations of this policy shall be commensurate with the nature of the offense and with the record of the student regarding any previous infractions. Sanctions may include, but are not limited to: a lowered grade, failure on the examination or assignment in question, failure in the course, probation, suspension, or expulsion from the University of Houston, or a combination of these. Students may not receive a W for courses in which they have been found in violation of the Academic Honesty Policy. If a W is received prior to a finding of policy violation, the student will become liable for the Academic Honesty penalty, including F grades.

ASSESSMENTS

- Test 1 (online) 3%
- Tests 2, 3, 4 (proctored in CASA) 15% each
- Final exam- 25%
- Online Quizzes - 10%
- Lab Quizzes - 7%
- Homework - 7%
- In-class Poppers and Attendance - 3%

Note: The percentage grade on the final exam can be used to replace your lowest test score.

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GRADING SCALE

University of Houston standard grading scale will be used to determine your letter grade in this course. If x is your semester numerical score, then your grade will be:

A	$x \geq 93$	B-	$80 \leq x < 83$	D+	$67 \leq x < 70$
A-	$90 \leq x < 93$	C+	$77 \leq x < 80$	D	$63 \leq x < 67$
B+	$87 \leq x < 90$	C	$73 \leq x < 77$	D-	$60 \leq x < 63$
B	$83 \leq x < 87$	C-	$70 \leq x < 73$	F	Below 60

It is the student's responsibility to withdraw from the course. Your instructor cannot do this for you. You are **STRONGLY** encouraged to talk with your advisor, your TA and your instructor **prior** to withdrawal.

INSTRUCTIONS FOR POPPERS

3% of your average will come from poppers. Popper questions will be given daily during the lecture period, beginning the first day of 3rd week of classes. You need to purchase a course package of Popper Bubbling Forms for Math 1432 with your section number from the BOOK STORE. You must bring one of these forms to class every day beginning week 3. No other form will be accepted. Questions will be asked during the lecture at random times. You will mark your answers on your form and drop the form in a box at the end of class.

Popper grades will be posted in your gradebook. If your popper grade is missing even though you turned it in, that means you've made a bubbling mistake and there is nothing we can do about it, you will not receive credit for such poppers. I will drop 15% of the popper questions given throughout the semester. This should make up for any missed popper grade and/or emergencies.

Do not turn in poppers for classmates who are not in class. If you do so, poppers for both students will not be accepted. Repeated offenses might be reported to the departmental hearing officer (see UH Academic Honesty Policy).

INSTRUCTIONS FOR ONLINE QUIZZES

10% of your average will come from online quizzes. There will be about two online quizzes given each week. You can attempt these quizzes up to 20 times, and the highest grade will be used for your score. You can access the quizzes by logging into CASA at <http://www.casa.uh.edu>. Quizzes will not reopen once they have closed. I will drop the one lowest online quiz grade at the end of the semester. You should expect 2-3 quizzes per week.

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INSTRUCTIONS FOR LAB QUIZZES

7% of your average will come from lab quizzes, which will be given during recitation sessions beginning the 2nd week of classes. Lab quiz grades are out of 10 points each. I will drop the one lowest lab quiz grade at the end of the semester.

HOMEWORK

7% of your average will come from homework (written and EMCF). Written homework is submitted in your recitation session beginning 2nd week of classes. "EMCF" stands for "Electronic Multiple Choice Form". EMCF assignments are answered on CourseWare using the EMCF tab. The EMCF assignment questions will be posted on the course calendar page on CourseWare at <http://www.casa.uh.edu>. Homework grades are out of 10 points each. I will drop the lowest homework grade at the end of the semester.

INCOMPLETE POLICY

A notation of "incomplete" may be given in lieu of a final grade to a student who has carried a subject successfully until the end of a semester but who, because of illness or other unusual and substantiated cause beyond the student's control, has been unable to take or complete the final examination or to complete some limited amount of term work.

GRADE APPEALS

If you want to appeal your grade on the free response portion of an exam, contact your teaching assistant or instructor within 5 business days after the exam grades are posted. Any alterations on your answer sheet will be considered an academic honesty violation (see Honor Principle paragraph on this syllabus). Grade appeals on any assignments should be made within 5 business days of the posting of the assignment grade.

ATTENDANCE

Attendance will be taken in lab, and the daily poppers will be used to determine your attendance in lecture. Attending the lectures and labs are important for your learning and success in this class; I strongly recommend that you do your best to attend both lectures and labs regularly.

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EXAM INFORMATION

All sections of Math 1432 take common exams. Four regular exams and a comprehensive final exam will be given during the semester. The first exam is an online exam that will be available by the first day of class at <http://www.casa.uh.edu>. You have no more than two attempts for exam one. The other three midterm exams and the final exam will be given in CASA (note the test location when you register). You can access the scheduler for these exams by logging on to CASA. The scheduler will be available 2 weeks prior to the start of the exam cycle. There are no make-ups for missed exams.** Your final exam grade will replace your lowest test grade if it is higher.

****NOTE:** Exceptions may be made per the [Student Academic Adjustments/Auxiliary Aids Policy](#) for students with approved CSD accommodations, as well as for students with an official excused absence as recognized by University of Houston in accordance with federal and state law.

Testing Dates:

Test 1: (online) Due 8/30/18 at 11:59pm

Test 2: (50 minutes) 9/20, 9/21, and 9/23/19

Test 3: (50 min) 10/11, 10/12, and 10/14/19

Test 4: (50 min) 11/08, 11/09, and 11/11/19

Final: (110 min) 12/09/19 – 12/11/19

Extra Credit:

There are practice tests and a practice final on Courseware. If you take the practice test, then 5% of the highest score you earn will be applied to the relevant test as extra credit on the corresponding exam. You can take the practice tests several times (up to 20 times) and we only take your best score. Pay attention to the “end” dates on these practice tests. In general, practice tests end before the exam period starts (except for Practice Test 1). To receive extra credit, students should take the practice tests before they close.

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LIST OF DISCUSSION/LECTURE TOPICS

Chapter 7 - Applications of Integration

- 7.1 Integration Review
- 7.2 Area
- 7.3 Volume
- 7.4 Centroids
- 7.5 Arc Length and Surface Area
- 7.6 Differential Equations and Exponential Growth/Decay
- 7.7 Improper Integrals

Chapter 8 - Techniques of Integration

- 8.1 Integration by Parts
- 8.2 Powers of Trigonometric Functions
- 8.3 Trigonometric Substitutions
- 8.4 Integrating Rational Functions
- 8.5 Numerical Integration

Chapter 9 - Sequences and Series

- 9.1 Sequences and Convergence
- 9.2 Numerical Series and Convergence
- 9.3 Tests for Convergence
- 9.4 The Power Series
- 9.5 The Taylor Series

Chapter 10 - Polar Coordinates and Parametric Equations

- 10.1 Polar Coordinates and Polar Curves
- 10.2 Area and Arc Length in Polar Coordinates
- 10.3 Parametric Equations
- 10.4 Derivatives for Curves Given Parametrically
- 10.5 Arc Length for Curves Given Parametrically
- 10.6 Surface Area

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CSD ACCOMMODATIONS

The University of Houston System complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for students who have a disability. In accordance with Section 504 and ADA guidelines, University of Houston strives to provide reasonable academic adjustments/auxiliary aids to students who request and require them. If you believe that you have a disability requiring an academic adjustments/auxiliary aid, please visit The [Center for Students with DisABILITIES \(CSD\)](http://www.uh.edu/csd/) website at <http://www.uh.edu/csd/> for more information.

Academic Adjustments/Auxiliary Aids: The University of Houston System complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, pertaining to the provision of reasonable academic adjustments/auxiliary aids for students who have a disability. In accordance with Section 504 and ADA guidelines, University of Houston strives to provide reasonable academic adjustments/auxiliary aids to students who request and require them. If you believe that you have a disability requiring an academic adjustments/auxiliary aid, please visit The [Center for Students with DisABILITIES \(CSD\)](http://www.uh.edu/csd/) website at <http://www.uh.edu/csd/> for more information.

Accommodation Forms: Students seeking academic adjustments/auxiliary aids must, in a timely manner (usually at the beginning of the semester), provide their instructor with an approved current Student Accommodation Form (paper copy or [online version](#), as appropriate) before an approved accommodation can be implemented.

Details of this policy, and the corresponding responsibilities of the student are outlined in [The Student Academic Adjustments/Auxiliary Aids Policy \(01.D.09\)](#) document under [*STEP 4: Student Submission (5.4.1 & 5.4.2), Page 6*]. For more information please visit the [Center for Students with Disabilities FAQs](#) page.

Additionally, if a student is requesting a (CSD approved) testing accommodation, then the student will also complete a Request for Individualized Testing Accommodations (RITA) paper form to arrange for tests to be administered at the CSD office. CSD suggests that the student meet with their instructor during office hours and/or make an appointment to complete the RITA form to ensure confidentiality.

*Note: RITA forms must be completed at least 48 hours in advance of the original test date. Please consult your [counselor](#) ahead of time to ensure that your tests are scheduled in a timely manner. Please keep in mind that if you run over the agreed upon time limit for your exam, you will be penalized in proportion to the amount of extra time taken.

UH CAPS STATEMENT

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless. You can reach CAPS (www.uh.edu/caps) by calling 713-743-5454 during and after business hours for routine appointments or if you or someone you know is in crisis. No appointment is necessary for the "Let's Talk" program, a drop-in consultation service at convenient locations and hours around campus.

http://www.uh.edu/caps/outreach/lets_talk.html