Math 2413 Honors Calculus I

PROFESSOR CONTACT INFORMATION:

Professor:	Dr. Vinh Dang	**Office Phone:**	281-618-5684
Office:	WINSHIP 115 T	**Office Hours**	M/W: 2:30-3:30pm T/Th: 11-12:30pm Other times by appointment
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WELCOME TO:

Term and Year:	Spring 2018
Course Title:	MATH 2413
Course Subject:	HONORS CALCULUS I
Course Sections:	1103, 1104
Class Days & Times:	M/W 8-10:15am
Class Room Locations:	Winship 177
Credit Hours:	4

COURSE OVERVIEW:

Math 2413 is designed to present the basic techniques of differential and integral calculus and some of their applications. Calculus I emphasizes limits, continuity, derivatives of algebraic, trigonometric, natural exponential, and natural logarithmic functions. Applications such as curve sketching, optimization, and related rates are discussed. Following this is an introduction to integral calculus including Riemann Sums, The Fundamental Theorem of Calculus and the area between two curves.

The main goals of this Honors class are: 1) Students will gain proficiency in the essentials of the subject and develop strong problem solving skills. 2) Students will explore the widespread applications of calculus in science, engineering and economics. 3) Students will learn to communicate mathematical ideas (both verbal and written) clearly and effectively to their peers and general audience.

To achieve these goals, in addition to lectures which cover the fundamental material, a significant part of class time will be spent on discussing four mini-projects assigned throughout the semester. These

projects are carefully designed to help students strengthen their problem solving skills by applying the tools and techniques of calculus to solve problems in many other fields. They also help students critically reflect on the theoretical aspect of the subject and come up with questions for further explorations and generalizations. Furthermore, in the second half of the semester, students will be given the opportunity to research a topic, present their research to their classmates, and produce a poster summarizing their research. The topics can be chosen from the applications of calculus, the historical development of mathematics that led to calculus, or the development of mathematics after calculus.

This course differs from the non-honors course in that many activities are designed to let students embark on the journey that many mathematicians travel through when they develop orginal mathematical tools and solve complex applications. They usually start with small examples/questions and perform calculations to understand the examples. Then they work (usually in collaboration with others) to identify and understand the general patterns, derive formulas and theory, try to apply the formulas in other situations, run into problems, come up with questions and try to address these further questions and problems to enrich and deepen their knowledge. Finally, for their theory and knowledge to be useful, they also need to explain and communicate the ideas effectively to others. Working through projects and doing research in interesting mathematical topics will help students understand how scientists, engineers and mathematicians think about problems, formulate hypotheses, research and resolve the problems and communicate their results. Learning to present their research to their peers will help student communicate complicated and technical ideas clearly and effectively.

Honors Learning Outcomes:

1. To help students develop effective written communication skills (including the ability to make effective use of information and ideas).
2. To help students develop oral communication skills.
3. To help students develop their ability to analyze and synthesize a broad range of material.
4. To help students understand how scholars think about problems, formulate hypotheses, research those problems, and draw conclusions about them.
5. To help students become more independent critical thinkers, demonstrating the ability to use knowledge and logic when discussing an issue or an idea, while considering the consequences of their ideas, for themselves, for others, and for society.

GETTING READY:

Prerequisites: Precalculus (Math 2412). Engl 0305 or 0365 or higher level course or placement by testing

Required Materials: Textbook: Calculus – Volume 1 – Openstax
The book can be access freely online at:
https://openstax.org/details/books/calculus-volume-1
(Please also download the (free) pdf version of the book)
WebAssign Online Homework System
Please register at http://webassign.net/ by the end of Monday, January 22th
The class key is: **lonestar.northharris 2496 8166**

Course Website: http://apps.lonestar.edu/blogs/vindang/spring-2018/math-2413-1103-honors-calculus-i-mw8am/

INSTRUCTOR GUIDELINES AND POLICIES:

FINAL GRADE CALCULATION:

WebAssign Homework	10%
3 Regular Exams and a Final Exam	60% (4 exams @ 15% each)
Four Mini-Projects:	20%
Final Presentation and Poster:	10%

GRADING POLICY:

90 – 100: A; 80–89.$\bar{9}$: B; 70 –79.$\bar{9}$: C; 60 – 69.$\bar{9}$: D; 59.$\bar{9}$ or Below: F.

If any of your exam scores is below 50%, you cannot receive a grade of "A" for the course, no matter what your percentage works out to be. THIS APPLIES EVEN IF AN EXAM SCORE IS REPLACED BY THE FINAL EXAM SCORE.

ATTENDANCE POLICY:

- Your attendance is critical. **I reserve the right to drop you after 3 or more absences.**
- If you anticipate missing class, please contact me in advance of your situation.
- You are expected to attend all classes, be on time and actively participate in class discussion.

HOMEWORK:

- The only way to learn mathematics is to DO mathematics. The homework is designed to help you understand the essential material and develop your problem solving skills. Understand these problems will also be very helpful when you work on the more involved problems and applications in the projects.
- The homework is assigned using WebAssign to provide you with valuable online resources and immediate feedback. The due date for each homework assignment is posted on WebAssign and the couse calendar. You are responsible for knowing which assignment is due when and complete the assignment before the due date. I have made an effort to keep the number of problems in these assignments to a minimum so that you can solve them in a reasonable amount of time and obtain a thorough understanding of the basic material before getting started on the projects and your research topic. However, it is essential that you solve these problems to keep up with the fast pace of the course. Immediately work on the online homework for a section as soon as we finish covering that section in class.
- **I reserve the right to drop you after 4 or more zero homework assignments.**

REGULAR EXAMS/FINAL EXAM MAKE-UP POLICY:

- No make-up exams will be given. I do understand that schedules get hectic. Thus, if you know in advance that you will need to miss an exam, let me know and I will try to make an arrangement. The following guidelines will apply:
    - You must notify me both in person and via email.
    - You must notify me at least one week prior to the exam date.

- If you wish to take the exam, you must take it before the regularly scheduled time.
- Notice that a panicked cellphone call from the freeway on the morning of the exam does not fall into this category. Such an event is covered below.
- Notice that asking me several days (or weeks or months) after the exam does not fall into this category. Such an event is covered below

- I also understand that unforeseeable events can occur. Hence, I will replace the lowest of your exam#1-3 scores with the score you make on the final exam, provided the score on the final exam is higher than your lowest regular exam scores. If you miss an exam, you will simply have your score from the final substituted for the missing score. The following guidelines will apply:
  - The final exam will not be replaced. You must take the final.
  - If you miss 2 exams, only one will be replaced.

USE OF PERSONAL ELECTRONIC EQUIPMENT IN CLASS:

- Unless otherwise given permission by your instructor, all cell phones and laptop computers must be turned off and placed out of sight. Personal electronic devices of any kind are not allowed once class has begun.
- Text messaging is not allowed in the classroom, you will be asked to leave the classroom if you engage in text messaging.
- During regular exams and the final, you must turn off all your cell phones, laptops, PDA's, ipads, etc. and put them in your backpacks and put your backpacks in the front of the class. **If you have an electronic communication device with you during the exam, you will receive a zero on the exam regardless of whether you use it or not. This is absolutely non-negotiable.**

BEHAVIOR:

I have zero tolerance for disruptive or disrespectful behaviors in class/web discussions/emails. Students who engage in such behaviors will be removed from the class room, or in more serious circumstances, dropped from the class. I will also remove any individual from the lectures/ discussions and/or the course who is deemed by me and/or others to be disrupting the educational process.

READING THE BOOK:

The textbook has thorough explanations and numerous interesting and important examples, clearly worked out. Therefore, I strongly recommend you read the sections that we are going to cover in class before coming to class. That way, we can use class time more effectively to go deeper into the intricate details of the material, concepts and techniques and discuss the projects and the interesting questions that you might have about the material.

RESOURCES:

Math Lab Tutoring: Students can get free help from tutors in MAC center (Winship 110). No appointment is necessary and the Lab is staffed with a tutor or tutors during all the hours it is open. Rhonda Cannon, Counselor for Math and Natural Sciences, is available in Winship 115G to assist you in meeting your academic, career, and personal goals.

CAMPUS CARRY:
The Texas Legislature enacted campus carry by passing Senate Bill 11, effective at LSC on August 1, 2017. Senate Bill 11, known as the "Campus Carry" law, amends Texas law to allow license holders to carry concealed handguns on college campuses. To carry a concealed handgun on LSC campuses, an individual must have a valid License to Carry issued by the Texas Department of Public Safety.

LSC has established rules and regulations regarding enforcement of Campus Carry. Lone Star College prohibits concealed carry in some areas of LSC campuses. For more information about Campus Carry, visit the LSC Campus Carry website at http://www.lonestar.edu/campuscarry.

ADA STATEMENT (2017)
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides civil rights protection for persons with disabilities. If you have a disability that requires accommodation(s) to participate in this course, please contact the LSC-North Harris Disability Services Office as soon as possible (Winship 120, 281-765-7940). Disability Services will provide you with the documentation I need in order to provide your accommodation(s). Failure to handle this in a timely manner may delay your accommodations.

6 – DROP STATEMENT
Students who enrolled in Texas public institutions of higher education as first-time college students during the Fall 2007 term or later are subject to section 51.907 of the Texas Education Code, which states that an institution of higher education may not permit a student to drop (withdraw with a grade of "W") from more than six courses. This six-course limit includes courses that a transfer student has previously dropped at other Texas public institutions of higher education if they fall under the law.

EMERGENCY NOTIFICATION INFORMATION
Lone Star College System (LSCS) is committed to maintaining the safety of the students, faculty, staff, and guests while visiting any of our campuses. Seehttp://www.lonestar.edu/oem for details. Register at http://www.lonestar.edu/12803.htm to receive emergency notifications. In the event of an emergency contact LSCS Police at (281) 290-5911 or X5911.