

Tarleton State University
Department of Mathematics and Physics
Course Syllabus

Course Number & Title: **MATH 2413 - Calculus I**

Catalog Description: Calculus I. (3-2) Algebraic and transcendental functions, limits, continuity, derivatives and related applications, an introduction to the definite integral, integration, and the Fundamental Theorem of Calculus. Use of computer technology and laboratory assignments will be required in this course.

Course Prerequisites: MATH 1316 or 2412.

Expanded Course Description: A first semester course that provides an introduction to the calculus of single variable, real-valued functions. Topics to be addressed in the course include:

- Polynomial, rational, trigonometric, exponential and logarithmic functions; inverse functions; inverse trigonometric functions
- Limits: function limits; continuity; tangent lines; velocity and acceleration; limits at infinity and horizontal asymptotes; indeterminate forms
- Derivatives: derivatives; differentiation formulas for polynomial, rational, trigonometric, logarithmic and exponential
- Functions; the chain rule; implicit differentiation; higher derivatives; related rate applications; linear approximations;
- Differentials; and applications to the natural and social sciences
- Applications of differentiation: Mean Value Theorem; absolute and relative extrema; curve sketching; applied
- Optimization; L'Hopital's Rule; and antiderivatives
- Integrals: Indefinite and definite integrals; areas under curves; the fundamental theorem of calculus; the
- Substitution rule

Student Learning Outcomes: Upon completion of this course, the student will demonstrate proficiency in using technology as appropriate to:

- Investigate the concepts of single variable calculus descriptively, numerically, graphically and symbolically
- Demonstrate an understanding of the development of limits, derivatives, integrals and related connections
- Apply the derivative in solving problems including optimization, related rates & curve sketching.
- Apply the fundamental theorem of calculus.
- Communicate mathematical ideas, solutions, proofs, and counterexamples using proper notation, appropriate technical and non-technical language, and helpful diagrams and graphs.

Textbook: Students must select at least one of the following text options:

- *(Single Variable) Calculus: Early Transcendentals, 7th edition*, by Stewart
- e-book, *(Single Variable) Calculus: Early Transcendentals, 7th edition*, by Stewart

University Policy: Students are responsible for knowing and abiding by the policies and information contained in the Tarleton Student Handbook (TSUSH)

Student Responsibilities: The student is *solely* responsible for:

- attending class regularly (in accordance with the instructor's attendance policy)
- completing each assignment by the specified due date
- utilizing, as needed, all available study aid options (including meeting with the instructor, attending Supplemental Instruction (SI) sessions, obtaining tutoring in the Mathematics Clinic, using tutorial software, purchasing a student

solutions manual, hiring a personal tutor, etc.) to resolve any questions that he/she might have regarding homework, course material, and/or technology projects

- recognizing and reading all relevant material in the course text and lecture
- being present and prepared for each exam on the specified date and time, unless the instructor determines that a makeup exam is warranted (see *Makeup Policy* below)
- obtaining assignments and other materials in the event of absence from class

Academic Conduct: Students guilty of academic dishonesty, cheating, or plagiarism in academic work shall be subject to disciplinary action [TSUSH]. The instructor may initiate disciplinary action in any case of academic misconduct. The Tarleton University Mathematics Department takes academic integrity very seriously. The usual penalty for a student caught cheating includes an F in the course. Further penalties may be imposed, including expulsion from the university.

Students with Disabilities: *It is the policy of Tarleton State University to comply with the Americans with Disabilities Act and other applicable laws. If you are a student with a disability seeking accommodations for this course, please contact the Center for Access and Academic Testing, at 254.968.9400 or caat@tarleton.edu. The office is located in Math 201. More information can be found at www.tarleton.edu/caat or in the University Catalog.*

Math Clinic: You are highly encouraged to get help at the math clinic, in Math 203. Their hours are Monday—Thursday: 8:00 to 5:00, Friday: 8:00 to 1:00

How to Succeed in This Course:

- 1) Attend Class. Only miss class when absolutely necessary.
- 2) Pay attention during class.
- 3) Work during activities.
- 4) Start homework as soon as possible. Don't procrastinate.
- 5) Get help on problems that you are struggling with, either from me, the math clinic, or other students.
- 6) Study briefly before each class to prepare for class. Study a moderate amount before exams.

Absence Policy: Class absence policies will be established and enforced by each individual course instructor. The course instructor may recommend to the Dean of Students that a student be dropped from a course if excessive absences prevent satisfactory progress [TSUSH].

Makeup Policy: Each course instructor has the responsibility and authority to determine if make-up work can be done because of absences [TSUSH]. Students may request make-up considerations for valid and verifiable reasons such as the following:

- Illness or Death in the immediate family
- Legal proceedings
- Participation in sponsored University activities (It is the responsibility of students who participate in University-sponsored activities to obtain a written explanation for their absence from the faculty/staff member who is responsible for the activity.)

Calculator Policy: All students are required to have their own graphing calculator when taking this course. During the administration of a test, the use of calculators may be restricted, at the discretion of the instructor. Students may also be restricted to the use of a calculator that does not have course notes stored in the memory. The instructor reserves the right to examine and delete material from the memory of a student's calculator.

Cell phones: Students are expected to set their cell phone so as to emit no audible noise in the classroom. Except for emergency situations, cell phone use (including texting) during the class period is strictly prohibited. A student who is noticeably (to the instructor) distracted by his/her cell phone and/or distracting others with it may be asked to immediately disable it or to leave the classroom.

Laptop computers: The classroom is a WiFi-capable zone. Students may utilize their laptop computer in the classroom, during the class period, so long as its use is restricted solely to class-related work as judged by the instructor. Use of the computer for any purpose not meeting the approval of the instructor and/or causing distraction to the owner and/or other students may lead to the instructor asking that it be immediately powered down, and/or that the student leave the classroom.

Course: MATH 2413 - Calculus I
Instructor: Dr. Peter W. White
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Office Hours: MWF 8-8:50, TR 9:25-10:15 ,
or by appointment.

Semester: Spring 2015
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Math Dept. Phone: 968-9168

Dept. web: <http://www.tarleton.edu/COSTWEB/math/index.html>

Textbook: *Calculus Early Transcendentals*, 7th edition, by Stewart. (see above for options)

Grading Policy: The student's grade will be assessed based on five (5) "one hour" exams, one final exam (Wednesday May 6 at 8:00-10:30 am), 10 technology labs and homework/quizzes for each section covered. Each of these areas will have the following weights and the course grade will be based on the total number of points the student achieves as listed:

Homework/quizzes	200 points
5 exams	500 points
Technology labs	100 points
Final exam	200 points
Total	1000 points

900-1000	A
800-899	B
670-799	C
500-669	D
0-499	F

Homework will be assigned for each section covered. Homework may be due at the beginning of the second class period after the topics for that section have been covered. The instructor reserves the right to give a quiz at the beginning of class in place of collecting the homework due for that day. No makeup quizzes will be given. The 200 points for homework will be calculated by dropping the three lowest section scores and converting what's left over into a percentage of 200 points.

If it is likely that you will have to miss a scheduled exam, please inform the instructor as early as possible so other arrangements can be made. The instructor reserves the right to refuse to give makeup exams.

Course Content: The course will cover most (if not, all) of the material in Chapter 1-6 of the text.

Attendance Policy: This is not high school! The instructor will not keep track of attendance. It is the student's responsibility to know what was covered in class. The best way to accomplish that is to attend class.

Disclaimer: Aside from university and departmental policy, all aspects of course policy are at the discretion of the instruction and subject to change.

Notes:

- In the event that the university is closed (due to extraordinary weather or other conditions) during a scheduled class time, all class activities and deadlines are postponed until the class meeting immediately following the date of closure.
- You are expected to present a TSU ID upon request.