

MATH 1451: Calculus I
Section D01, 6/3/2014 – 8/8/2014

Course Information and resources:

Instructor: Chris Monico
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 Course website: <http://www.math.ttu.edu/~cmonico/teaching/sum14/math1451>
 Required Text: *Calculus*, Smith, Strauss, and Toda, 6th Ed.
 Other resources: Recorded lectures by Prof. Brock Williams
 WeBWorK server (homework and mid-term exams)
 Kahn Academy (derivatives and applications)
 Kahn Academy (integration)

Course outline & Important dates: Homework and mid-term exams will be assigned online through the WeBWorK system. The final exam will be taken in-person at the specified time and date at Texas Tech University or at an instructor-approved, proctored location, to be arranged (and paid, if necessary) by the student.

We will cover nearly all material from Chapters 1-5 of the textbook. Students will have access to recorded lectures by Prof. Brock Williams, but should also read the textbook. Alternate resources, such as Kahn Academy, should also be used as a supplement when needed. With the exception of the exams, the course is *asynchronous*, so students may watch lectures and complete homework assignments at their leisure, subject to the due dates listed below. Homework assignments for each section will be due at midnight Central Standard Time, and will open four days in advance of the due date (with the exception of the first assignment). Please plan your schedules in advance, as *assignments will not be re-opened once they've closed*. **The exams, however, must be taken at specified times, so please take note and make sure you'll be available for these ninety-minute exams. Make sure you also take into account any time differences between your location and Lubbock, Texas!**

Section(s)	Due date	Section(s)	Due date
1.1 – 1.5	6/6	4.1	7/3
2.1	6/9	4.2	7/7
2.2	6/10	4.3	7/9
2.3	6/12	4.4	7/10
2.4	6/13	4.5	7/14
3.1	6/16	4.6	7/16
3.2	6/18	5.1	7/18
3.3	6/20	5.2	7/21
3.4	6/23	5.3	7/23
3.5	6/25	5.4	7/25
3.6	6/27	5.5	7/28
3.7	6/30	5.6	7/30
3.8	7/1	5.7	8/1
		5.8	8/4

Exam 1 (online)	Monday, 6/23, 10:00AM – 11:30AM CDT
Last day for student-initiated drop on MyTech with penalty	Monday, 6/23.
Exam 2 (online)	Friday, 7/11, 10:00AM – 11:30AM CDT
Exam 3 (online)	Tuesday, 7/29, 10:00AM – 11:30AM CDT
Final Exam (proctored, in-person)	Friday, 8/8, 8:00AM–10:30AM CDT

Calculator policy: The mastery of arithmetic is a prerequisite for this course. Calculators may not be used on the final exam; I therefore encourage you to plan for this in advance, by relying on a calculator as little as possible for homework and mid-term exams. Enter answers into WeBWorK in exact form for practice, instead of using decimal approximations. See WeBWorK tips at the end of the syllabus.

Make-up exams If you miss an exam, you will be permitted to make up the credit *if and only if* you miss it for one of the following reasons:

- You are out of town performing duties on behalf of the university (i.e., athletics). Advance notification is required.
- Religious holiday (see TTU OP 34.19 below).
- **Severe** illness or hospitalization. Illness must be documented by a physician.
- Death in the family.
- Other extenuating circumstances, at the instructor's discretion (I am *not* very generous with this - it is only meant to allow for unforeseeable situations that are more serious than the things listed above).

Note: Under such circumstances, a make-up exam will not be given; instead, your final exam score will be weighted by an additional 15%.

Core Curriculum/graduation requirements satisfied by MATH 1451

MATH 1451 satisfies part of the university Core Curriculum requirement in Mathematics.

Course-specific learning objectives and corresponding outcomes

- 1. Apply arithmetic, algebraic, geometric, statistical and/or logical reasoning to solve problems.**
In MATH 1451 students will develop skills to: (i) be able to explain the concept of continuous functions; (ii) compute instantaneous rate of change; (iii) compute derivatives of polynomial and transcendental functions; (iv) use differentiation to solve related rate and optimization problems; (v) compute definite and indefinite integrals; (vi) apply specific concepts to certain problems from the real world and other sciences. Student mastery of problem solving skills will be assessed through homework exercises, in-class quizzes, and examinations. *Assessment Strategies:* A comprehensive list of homework and exam problems will be created for which at least 25% of the problems on this comprehensive list will address this specific objective.
- 2. Represent and evaluate basic mathematical and/or logical information numerically, graphically, and symbolically.**
In MATH 1451 students will learn how to adequately communicate mathematical information in writing, verbally and graphically, by using words, numerical answers, algebraic expressions, logical sentences, as well as graphs and diagrams. *Assessment Strategies:* A comprehensive list of homework and exam problems will be created for which at least 25% of the problems on this comprehensive list will address this specific objective.
- 3. Use mathematical and logical reasoning to evaluate the validity of an argument.**
In MATH 1451 students will learn how to identify, understand and apply mathematical and logical reasoning to theoretical and applied problems. In particular, attention will be given to elementary proofs in calculus and hypothesis-conclusion inferences for applications such as the Mean Value Theorem and l'Hopital's Rule. *Assessment Strategies:* A comprehensive list of homework and exam problems will be created for which at least 25% of the problems on this comprehensive list will address this specific objective.
- 4. Interpret mathematical and/or logical models such as formulas, graphs, tables and schematics, and draw inference from them.**
In MATH 1451 students will learn to identify and interpret mathematical information contained in formulas, graphs and tables, in particular: (i) modeling rates of change in rectilinear motion; (ii) linear approximations; (iii) optimization and applications to physical problems; (iv) Riemann sums and integration. The development of student interpretative and inference skills will be assessed through homework exercises, in-class quizzes, and examinations. *Assessment Strategies:* A comprehensive list of Homework and Exam problems will be created for which at least 25% of the problems on this comprehensive list will address this specific objective.

College-Level Competency: Students graduating from Texas Tech University should be able to: demonstrate the ability to apply quantitative and logical skills to solve problems. In particular, students who have taken MATH 1451 will be able to use the course-specific learning objectives in order to provide individual solutions to mathematical problems and interpret the results in a relevant manner. The assessment of these skills will be conducted via embedded assessments in final exams, senior surveys (GSS) and senior assessments (OSA).

Learning Assessment Learning outcomes will be assessed through regularly assigned homework, three mid-term exams, and a final exam. Homework and mid-term exams will be assigned through the WeBWorK system. The final exam will be taken in-person at the specified time and date at Texas Tech University or at an instructor-approved, proctored location, to be arranged (and paid, if necessary) by the student.

Your final grade in this course will be determined by the weighted components and grading scale below.

Grade components		Grade Scale	
Online homework:	20%	90–100%	A
Exam 1:	15%	80–89%	B
Exam 2:	15%	65–79%	C
Exam 3:	15%	55–64%	D
Final Exam:	35%	0–54%	F

ADA Accommodation: Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructors office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office in 335 West Hall or 806-742-2405.

Religious Holy Day Observance (OP 34.19)

1. “Religious holy day” means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code §11.20.
2. A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.
3. A student who is excused under Section 2 may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.

Academic Integrity

I take academic integrity extremely seriously. In particular, I have a zero-tolerance policy for both cheating and plagiarism. I define *plagiarism* as claiming the work or ideas of someone else as your own. Copying homework, phrases, sentences, or mathematics from any other source (including another student or a solutions manual) without citation is therefore plagiarism. Yes - it is very possible to plagiarize mathematics and it is just as offensive as every other instance of plagiarism. I would hope that you do not want someone else to claim credit for your hard work and I therefore expect that you will not claim credit for someone else’s work under any circumstances. If you use (read, look at, listen to, copy,...) a source other than the textbook then cite it, being as specific as possible (e.g., if you used a web site then give the URL - but if you forgot to write it down or cannot find it, the next best thing would be the name of the web site; if you cannot remember that, then at least acknowledge that it came from the web but you cannot remember where).

All instances of plagiarism and cheating on exams will be dealt with as strictly as allowed by TTU OP 34.12.

WeBWorK Tips

1. Pay careful attention to the dates and times that each assignment opens and closes. Once an assignment is closed, it will not be re-opened, and I generally cannot respond to questions late at night, so please plan accordingly.
2. Avoid using calculators whenever possible. Doing so may introduce round-off error for which some WeBWorK problems have little tolerance. Just as importantly, since calculators will not be allowed on the final exam, it would be worthwhile to practice your symbolic manipulation skills with homework problems to arrive at exact answers. For example, if the answer to a problem is $\frac{2}{7}$, enter $\boxed{2/7}$, not 0.2857. If the solution is the number $2\pi\sqrt{3}$, enter $\boxed{2^{*}pi^{*}sqrt(3)}$, not 43.45, as an answer. If you’re not sure you’ve typed something correctly, or whether or not WeBWorK understands what you’ve typed, try

the *Preview Answers* button to see what WeBWorK thinks of your answer without actually submitting it. WeBWorK does know the mathematical constants π and e and most common functions, including $\exp(x)$, $\ln x$, $\sin(x)$, $\cos(x)$, \dots .

3. If you have a specific question about a specific problem that you've not been able to figure out, then use the *Email instructor* button on that problem. You will be able to compose an email and a URL that links directly to that problem will be automatically attached to your message.