## CALCULUS I MATH 1550

## SECTION 021

## Course Information

* **Course:** Math 1550 Section 021
* **Text:** Calculus (Early Transcendentals), 8th edition
* **Author:** James Stewart
* **Course Content:** Chapters 2-6 of textbook plus some sections of chapter 8.
* **Classroom:** 1022 Camellia Hall
* **Time:** 8:30 - 9:20 am MTWThF

### **Instructor Information**

* **Instructor:** Timothy Homan
* **Office:** 230 Lockett Hall
* **Office Hours:**

Office hours will be held each week in Camellia Hall. Information about the time and room will be posted on our Moodle page.

* **Email:** thoman@lsu.edu

### Course Description

This course is a five (5) hour introductory calculus course designed for math, science and engineering majors and certain other technical majors. As a 5-credit course, students are expected to meet in class for 5\*50 = 250 minutes per week and have a minimum of 10 hours per week outside of class for studying and homework, for a minimum total time obligation of 15 hours per week.

This course is an Integrative Learning Core course. Integrative learning allows students to make simple connections among ideas and experiences and across disciplines and perspectives. The LSU Integrative Learning Core (ILC) curriculum is designed to develop student abilities to transfer their learning to new situations and demonstrate a sense of self as a learner. A fundamental goal of the ILC is to foster students’ practical and intellectual capacities associated with integrative learning in preparation for high competence and functionality in their post-baccalaureate careers. This course fulfills the BOR Area of Mathematical/Analytical Reasoning and provides students experience with the ILC proficiency of Quantitative Literacy.

### ALEKS Course Prerequisite

To enroll in this course you need to have a minimum score of 76% on the ALEKS Calculus Placement Test. More information on the LSU calculus ALEKS requirement is available here:

<https://www.math.lsu.edu/ugrad/ALEKS>

<https://www.math.lsu.edu/ugrad/PlacementCredit>

This test covers the fundamental precalculus skills that you will need to succeed in this course. If you achieved your ALEKS score in a way that does not reflect your own skills and knowledge, then you may have difficulties succeeding in this course. In such a case, you are strongly urged to work through the ALEKS learning modules over the next two weeks so that you can attain a passing score that reflects what you know.

### Grades

Grades will be calculated according to the rubric below:

|  |  |  |
| --- | --- | --- |
| **Final Exam** | Comprehensive | 25% |
| **Exams** | Four hourly exams | 60% (15% each) |
| **Homework** | varies | 15% |

#### Grading Scale

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|  |  |
| --- | --- |
| 97.5+ | A+ |
| 93.5-97.4 | A |
| 89.5-93.4 | A- |
| 86.5-89.4 | B+ |
| 82.5-86.4 | B |
| 79.5-82.4 | B- |
| 76.5-79.4 | C+ |
| 72.5-76.4 | C |
| 69.5-72.4 | C- |
| 66.5-69.4 | D+ |
| 62.5-66.4 | D |
| 59.5-62.4 | D- |
| 0-59.4 | F |

#### Homework

Homework will be given in WebAssign for every section that we cover in the class. The due dates for the assignments are given in the WebAssign software and should be checked often. Any last-minute changes to due dates will be announced in class and/or via email.

#### Tests

There will be five tests total in the class. Four midterm tests and one final exam will be given. Each test will be given in class in person and will be paper-based. The test dates are given below.

#### Exam Schedule (Tentative)

Exam 1: Monday, February 6th

Exam 2: Monday, March 6th

Exam 3: Thursday, March 30th

Exam 4: Tuesday, April 25th

#### The Final Exam

The Final Exam will take place on Saturday, May 13th from 7:30 am to 9:30 am. There will be no early Final Exam exceptions. The final exam will be two hours instead of 50 minutes and will cover all of the material for the entire semester.

#### Extensions

Students may request an automatic extension in the WebAssign software for any homework assignment not completed on time and may then complete the homework for a 20% penalty. The student will have up to three days to complete the missed portions of the assignment, but the new deadline will not exceed 7 days from the original deadline.

#### Drops and Replacements

At the end of the semester the lowest homework grade will be dropped and the others will be averaged together evenly.

The lowest of the four midterm test grades will be replaced by the final exam grade if it will improve the overall grade.

#### WebAssign

We will be using WebAssign to do homework. If you have already purchased a multiterm Webassign access code for calculus in a prior semester, you can re-use that code with no additional purchase of the 8th edition of Stewart’s Calculus textbook. If you do not have an access code and need to purchase one, LSU has negotiated a special discount for Webassign access. The LSU special pricing is $89.99 for multi-term access to courses at LSU that use the 8th edition of the Stewart book. To get the special pricing, look for it on the drop-down menu where you are prompted to select the WebAssign materials you are purchasing. Select the special price of $89.99. This is good for multiple semesters and it is a lower price than what you will pay if you select that you want to purchase for just one semester. Since the access code provides access to the online e-book, the physical pages of the textbook are not necessary unless you prefer reading from paper instead of from a screen. **For accessing Webassign please visit the Introduction Section of the Moodle course page. That page contains an access link that you will use to register for WebAssign.**

#### Calculators and Collaboration

You can use any technology available to help with homework, and you may collaborate with others while doing them. However, on exams you may only use a scientific calculator that does not do graphs or symbolic manipulation, such as solving equations and symbolically calculating derivatives and integrals. Work on in-class exams must be your own work with no assistance from anyone else. During an exam, attempts to look at other students’ work, the use of crib sheets or formula sheets, and any attempts to access the internet will be considered a violation of the LSU Code of Student Conduct.

### Disclaimer

Much of what is on this syllabus is subject to change. If circumstances beyond our control cause changes in the course, your instructor will inform you as soon as possible and upload any updates to the Moodle course page. If classes are converted to online, you will need to take exams through Proctor U which will cost about $15 per exam and about $22 for the final exam.

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### Topics Covered

A partial list of basic skills you should acquire during the course.

1. Limits and Continuity
   * Evaluate limits from a graph
   * Evaluate limits at points of continuity
   * Evaluate limits of indeterminate forms
   * Know what continuity implies about a graph and behavior of a function
   * Determine points of discontinuity for functions defined as formulas or graphs
2. Differentiation
   * Know the various interpretations of the derivative (velocity, rate of change, slope of tangent line)
   * Evaluate the derivatives of simple functions using a difference quotient
   * Evaluate the derivatives of combinations of the basic elementary functions
   * Take the derivative using implicit and logarithmic differentiation
   * Find tangent lines and be able to use them as linear approximations
   * Find critical values, local extrema and the intervals of concavity for differentiable functions
   * Find absolute extrema of constrained functions
   * Solve problems involving related rates
   * Solve basic optimization problems
   * Understand the Mean Value Theorem for derivatives
3. Integration
   * Understand anti-derivatives and know the basic anti-derivative formulas
   * Have an understanding of the Riemann integral as a limit of Riemann sums
   * Be able to use both parts of the Fundamental Theorem
   * Evaluate definite integrals using substitution
   * Find the area between two curves and the volumes of solids of revolution
   * Find arc lengths and areas of surfaces of revolution
   * Understand the Mean Value Theorem for integrals