Syllabus
MATH 1550, version 1.2
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MATH 1550—Analytic Geometry and Calculus I

Course Description: Limits, derivatives, and integrals of algebraic, exponential, logarithmic, and trigonometric functions, with applications.

Textbooks and Other Materials

Courses that require *paid codes* to access online materials require that special arrangements are made to provide extended material access periods in the event that a course extension is needed. Special ISBN's have been created in these cases. *Do not attempt to order your textbook access codes from other sources.* Students enrolling in ODL courses are *required* to follow the textbook ordering information provided in the syllabus and Getting Started module of the course.

ODL is *not responsible* for student purchases that result in *the receipt of the wrong materials. It is the responsibility of the student to* order the correct textbook materials. Courses are written to specific textbook editions; edition substitutions *are not allowed*.

Textbook

James Stewart. *Calculus: Early Transcendentals* with Enhanced WebAssign
Instant Access for Calculus. Eighth edition. Boston, MA: Cengage
Learning, 2016.
ISBN-10: 1-305-70937-3
ISBN-13: 978-1-305-709379-9

WebAssign: Participation in this course requires paid access to WebAssign. See Getting Started course module for details.

Ordering Information

We will be using WebAssign as a companion website to complete module assignments, online proctored exams and the final exam in this course. A WebAssign access code is included with your textbook, or you can purchase access directly from the WebAssign website without buying a book at all. Access to WebAssign also gives you access to the eBook version of our textbook. Your unique class key is provided in the Getting Started Module of your Moodle course site.

Use the information listed in step 3 of your Getting Started Module in your Moodle course site to help you create an account and use WebAssign.

Please review the following tips for ordering your course materials:

1. Do not purchase your textbooks until your enrollment is approved. During the processing period, a new section may be opened that could require a different textbook or edition.
2. Courses that require special access codes *require* that students use the direct links to the publisher microsites. (See the information in the syllabus and Getting Started Module for additional ordering instructions.)
3. *Always order by the ISBN*. Publishers and vendors often offer the same textbook title under different ISBNs. You must have the correct ISBN to access your online website.
4. Our official LSU Online Distance Learning bookstore (http://www.outreach.lsu.edu/Extended-Campus/Online-Distance-Learning/Textbooks) carries most of the required textbooks.
5. If you are having problems locating a textbook, contact us at Answers@outreach.lsu.edu for assistance.

Other Materials and Resources

Calculators

Graphing calculators and calculators with symbolic manipulation capabilities, such as TI-89 or TI-92, will not be allowed on the tests or the final exam. Scientific calculators with logarithmic and exponential capabilities are acceptable. For more information, please read the calculator policy located in the Getting Started Module.

Other Materials

PDF lecture notes for each module are provided in Moodle. It is recommended that you review the provided PDF Lecture for each module. A study guide is also provided for each exam.

Software: Web Browser, Adobe Flash Player, Adobe Shockwave Player, Adobe Acrobat Reader

> It is recommended that you use Mozilla Firefox or Google Chrome as your web browser. Internet Explorer is not compatible with your Moodle course site.
>
> Adobe Flash and Adobe Shockwave player are required for online testing. Adobe Acrobat Reader is required to view PDF document files.

Hardware: *Web cam with a microphone (built-in or external), headphones or working speakers,* and *high speed internet*

> Proctored exams are completed online and require the hardware listed above. Students are encouraged to review the technical requirements provided on the ProctorU website and to perform a test on their equipment prior to enrolling in this course to make sure they have the necessary resources available. There is a separate charge for each proctored exam.
>
> **Technical Requirements:** http://www.proctoru.com/tech.php
>
> **Equipment Test:** http://www.proctoru.com/testitout/

Nature and Purpose of the Course

Course Outcomes. Upon completion of this course, students are expected to be able to:

1. Explain the concept of a limit of a function.
2. Find limits of a variety of algebraic and transcendental functions numerically, graphically, and analytically.
3. State whether a function is continuous or discontinuous based on both the graph and the definition of continuity.
4. Find the derivative of a variety of algebraic and transcendental functions using the limit definition of the derivative and other differentiation rules.
5. Apply the derivative in a variety of application problems, including tangent lines, related rates, optimization, and curve sketching.
6. Compute the indefinite and definite integral of a variety of algebraic and transcendental functions.

7. Apply the techniques of integration to solve application problems, including area between curves, volumes of solids of revolution, and work done by a variable force.

Calculus is the mathematical study of change. It was invented by Isaac Newton who discovered the Second Law of Motion. The Second Law of Motion states that acceleration, which means the rate of change of the velocity of a moving object, is produced by a force acting on the mass of the object. Newton's Second Law of Motion is used in physics and engineering to predict how objects behave in motion. Today, calculus is widely used in mathematical modeling to describe real world problems and make predictions about future behavior.

Calculus presented in this course consists of two main branches: differential calculus and integral calculus. In differential calculus, you will learn the concept of instantaneous rates of change and slopes of curves—formally called derivatives. In integral calculus, you will learn the concept of accumulation of quantities and the area under a curve—formally called Integrals. The Fundamental Theorem of Calculus establishes a relation between these two branches.

Calculus is a prerequisite for all students in math, engineering, and science and certain other technical majors. In addition, this course satisfies five hours of the General Education Analytical Reasoning requirement. The student who is a participant of this course is assumed to be capable and versed in the standard pre-calculus topics such as algebra and trigonometry.

This course has been designed with the purpose of teaching you the manipulative skills needed to solve calculus type problems. You will also develop skills that will allow you to explain key concepts, solve related rates and optimization problems, and real world problems in general.

Working with the Course Materials

Remember, this course covers an entire semester of work or the equivalent of a classroom course lasting 15 weeks. That means that each module in this course equals nearly a week of course work and will require the same time and effort on your part. *Do not expect to complete each module in a single study session. Understand, too, that if you choose to submit assignments at a very high pace, your instructor may not be able to grade your work at the same rate.*

Each module contains information, activities, and assignments organized under a consistent series of headings. Get familiar with how the module is organized. Each module in this course is organized into the following sections: the Module Learning Objectives, the Module Lecture Materials, and the graded Module

Assignment. You should work through these parts of the module in order. Specific recommendations are provided in a link to the course module instructions, which you should review before beginning the first module. Completing the following sequence is strongly encouraged for each module.

1. *Review the module learning objectives.* This will give you information on the material that will be covered in the module and what you should focus on as you are learning the material. It also provides insight as to what you will be expected to do once you have completed the module. Use this information as a guide when studying for your examinations.

2. *Complete review of Module Lecture Materials.* Specific readings will be provided in the Module Lecture Materials area of the module and your instructor has provided PDF Lectures that accompany each module.

3. Complete your Module Assignment in WebAssign.

4. Complete your Module Assignment Verification in Moodle.

Module assignments and exams will be completed online using WebAssign. For more information please see the section of this syllabus labeled, "Module Assignments."

General Education Course Credit

For LSU students, this course satisfies five hours of the General Education Analytical Reasoning requirement.

WebAssign Learning Aids and Companion Website

WebAssign has all of the features you need to succeed in MATH 1550.

These features include e-textbook access, Homework Hints, Video Tutorials, Practice Another Version, and PDF's of solutions (with steps to find the answer).

Suggested Study Techniques

1. Carefully review the module objectives to help you focus on the information that will be covered on the exams.
2. Concentrate on the reading assignments, the module lecture material, and any additional resources provided. This review should include a detailed examination of any illustrative problems and examples. After an assignment has been completed, a rapid re-reading of the related text and other materials is strongly recommended.

3. Put yourself on a definite schedule. Set aside a certain block of hours per day or week for this course and work in a place where distractions are minimal.

4. Try to submit one assignment each week or at least every two weeks. Delays in submitting assignments usually result in lagging interest and the inability to complete the course.

5. Review your module assignments after they have been graded, paying special attention to any instructor feedback provided. (We suggest that you wait for assignment feedback before you submit subsequent assignments.)

6. Regardless of how you complete your graded assignments, keep in mind that module completion should not be your sole preparation for your exams. As with any college course, you should study for your exams.

Reading Assignments

To do well in this course, it is essential that you read and study all of the course materials that precede each module assignment.

You will read an average of 15 pages per module. Specific reading assignments will be given in each module.

Topic Outline

This course covers the following specific topics:

Module	Topic
01	Functions and Models—Part I
02	Functions and Models—Part II
03	The Concept of a Limit; Definition of a Limit
04	Limit Laws; Continuity
05	Limits at Infinity; Asymptotes
06	Derivative Definition; Differentiability and Higher Order Derivatives
07	Basic Rules of Differentiation
	Exam I
08	Derivatives of Trigonometric Functions; The Chain Rule
09	Implicit Differentiation; Derivatives of Inverse Trigonometric Functions
10	Derivatives of Logarithmic Functions; Hyperbolic Functions and Their Derivatives
11	Related Rates

12	Differentials and Linear Approximations; Newton's Method
13	Local Extreme Values; Absolute Extreme Values: The Mean Value Theorem
14	The First Derivative Test; Concavity and Inflection Points

Exam II

15	Indeterminate Forms and L'Hopital's Rule
16	General Curve Sketching
17	Optimization Problems
18	Antiderivatives
19	Areas and Distances; The Definite Integral
20	The Fundamental Theorem of Calculus
21	Indefinite Integrals: The Substitution Rule

Exam III

22	Area Between Curves, Volumes of Solids of Revolution by Disks and Washers
23	Volumes of Revolutions by Cylindrical Shells
24	Work; Average Value of a Function

Final Examination

Module Assignments

Each Module contains one module assignment related to the concepts presented in the module lecture. Before attempting the assignment, read the lecture notes and the corresponding sections in your textbook.

WebAssign is a very powerful tool and easy to use. It comes with many learning aids such as tutorial videos, eBook, "Practice Another Version," "Ask a Tutor," "Homework Hints," and "Master it." However, it is highly recommended that you have your own notebook, take notes, and watch the tutorial videos when completing your module assignments. This will help you to understand the concepts given in the book. Also, it will help you master the procedures used to solve the given problems and make it easy to review for your exams.

You are only allowed *five* attempts for each Module Assignment. Your final attempt will be submitted for grading. Your module assignment average is worth 30% of your course grade.

Module Assignment Verification is required following each assignment submission. Click on the Module Assignment Verification link in Moodle following each WebAssign submission.

You should submit each module assignment as soon as it is completed. Some courses have restrictions that require that a grade be received before you can submit additional assignments. Specific information on assignment submission is included in the Module Instructions. Please be sure to follow these instructions.

Do not rely too heavily on your textbook or other resource material when preparing your assignments. If you do, you may not realize until exam time that the perfect response you prepared for an assignment was only possible because you referred to resource material without really learning or understanding the material and concepts. Therefore, you should attempt each assignment without referring to the resource material, and if you find it necessary to look up an answer, be sure you have actually learned the concept and material rather than merely reflecting it in the answer.

You must have a *grade posted in the Moodle grade book for both the Module 24 Assignment and the WebAssign Coursework Completion Notification in order to unlock access to the Final Exam.* Please allow at least *seven* days for the final assignment grade to be posted in the gradebook.

Once you *submit* an assignment, you cannot revise it, so be sure to check your work. Your instructor will normally post a grade for your assignment within *seven calendar days.* Understand that occasional delays will occur, such as during holidays and semester breaks or if you submit several module assignments within the same week. You must have been enrolled in the course for *at least three weeks*, regardless of when the modules and other exams are completed.

Academic Integrity

Students in Online Distance Learning (ODL) courses must comply with the *LSU Code of Student Conduct.* Suspected violations of the academic integrity policy may be referred to LSU Student Advocacy & Accountability (SAA), a unit of the Dean of Students. If found responsible of a violation, you will then be subject to whatever penalty SAA determines and will forfeit all course tuition and fees.

Plagiarism

Students are responsible for completing and submitting their own course work and preparing their own modules. All work submitted in the course modules must be the student's own work unless outside work is appropriate to the assignment; all outside material must be properly acknowledged. It is also unacceptable to copy directly from your textbook or to use published answer keys or the teacher's edition of a textbook.

Collaboration

Unauthorized collaboration constitutes plagiarism. Collaborative efforts that extend beyond the limits approved by the instructor are violations of the academic integrity policy. Students who study together are expected to prepare and write their own individual work for submission and grading.

For more information and links to the *LSU Code of Student Conduct* and the SAA website, go to the ODL Academic Integrity policy on our website.

Examinations and Grading Policy

There will be three exams and a final exam. Exam I follows Module 07, Exam II follows Module 14, and Exam III follows module 21. The final exam is cumulative and follows Module 24.

No dictionaries, books, or aids are allowed (with the exception of an approved calculator). Graphing calculators and calculators with symbolic manipulation capabilities, such as TI-89 or TI-92, will not be allowed on the tests nor on the final exam. Scientific calculators with logarithmic and exponential capabilities are acceptable.

You are allowed a blank white board during the exam. To verify the white board is blank, you must show your white board to the proctor before you begin your exam. At the end of the exam, the proctor will instruct you to wipe clean the white board; the proctor must witness you wiping clean the white board.

You will have a maximum of *two* hours to complete each exam and *three* hours for the final exam.

- Module assignments count 100 points each.
- Exams are 100 points each.
- Course grade = average of module assignments + average of exams + final exam score. Each component is weighted by predetermined percentages in the following table:

Component	Weight (%)
Average of Module Assignments	30%
Average of Exams I, II, and III	45%
Final Exam	25%

The following grading scale applies:

      97%–100% = A+
       93%–96% = A
       90%–92% = A-
       87%–89% = B+
       83%–86% = B
       80%–82% = B-
       77%–79% = C+
       73%–76% = C
       70%–72% = C-
       67%–69% = D+
       63%–66% = D
       60%–62% = D-
        0%–59% = F

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**YOU MUST EARN A PASSING AVERAGE ON THE
EXAMINATIONS IN ORDER TO PASS THE COURSE.**

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IMPORTANT: The final exam cannot be taken until you meet the following requirements. Under no circumstances may the final exam be taken earlier.

1. You must have been enrolled in the course for *at least three weeks*, regardless of when the modules and other exams are completed.

2. You must have a grade posted in the Moodle grade book for both the Module 24 Assignment and the WebAssign Coursework Completion Notification in order to unlock access to the Final Exam. Please allow at least 7 days for the final assignment grade to be posted in the gradebook.

To read the full exam policy and other policy statements, visit http://www.outreach.lsu.edu/Extended-Campus/Online-Distance-Learning/Guidelines-Policies/Policies. Go to Continuing Education's homepage. Click on *Extended Campus,* select *Online Distance Learning*, and then click the link for *Guidelines and Policies*.

Taking Your Examinations

You are *required* to create a Louisiana State University ODL ProctorU account and to take your examinations through ProctorU, a remote proctoring service that allows you to take exams anywhere with internet access (some restrictions apply). Information on creating your ProctorU account can be found in the *Getting Started* module. You cannot use an account created through another

university, so if you already have an account, you will still need to create an account associated with LSU Online Distance Learning (ODL).

The ProctorU website provides links you can use to find out how ProctorU works and to check your computer to see that it meets the technical requirements. In addition, to test using ProctorU, you need *access to a web cam with a microphone (built-in or external), headphones or working speakers*, and *high speed internet* to use this service. A complete list of technical requirements is available from the ProctorU website.

You should schedule your exams about a week before you are ready to take them in order to avoid any additional charges.

Transcript Information

After you have completed this course, your grade will be filed with the Office of the University Registrar. If a transcript is needed, it is your responsibility to make a request to the registrar. If you would like to order a transcript, visit the Office of the University Registrar Transcript Requests page to view your options (http://sites01.lsu.edu/wp/registraroffice/student-services/transcript-request/).

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