Syllabus
MATH 1552, version 1.2
Effective: September 27, 2019

MATH 1552—Analytic Geometry and Calculus II

Course Description: Techniques of integration, parameter equations, analytical geometry, polar coordinates, infinite series, vectors in low dimensions; introduction to differential equations and partial derivatives.

Textbooks and Other Materials

The required materials for this course are a textbook, either physical or electronic, and access to a Cengage WebAssign course site. Please use the information below to make sure you purchase the correct materials.

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

WebAssign Access

This course requires paid access to a WebAssign course website that includes an electronic version of the textbook. Since our courses have a longer duration than regular semester-based courses, you *must* purchase access through the WebAssign site when you create your account and enroll in the course. Please follow the instructions in the "Getting Started" module in your Moodle course to begin this process.

Hardcover Textbook

James Stewart. *Calculus: Early Transcendentals.* 8th edition. Boston: Cengage, 2016.
      ISBN-10: 1-285-74155-2
      ISBN-13: 978-1-285-74155-0

CAUTION! If you choose to purchase a hard copy of the textbook, please make sure that you are *not* purchasing a WebAssign access code with your book. You *must* buy access at the

WebAssign site to receive access that is long enough to complete your course work. Follow the steps in your Moodle course to purchase access.

Ordering Information

Please review the following tips for ordering your course materials:

- 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.
- *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.
- If you are having problems locating a textbook, contact us at Answers@outreach.lsu.edu for assistance.

Other Materials and Resources

Required Software: Microsoft Word

You must use Microsoft Word to open the module lecture materials.

We recommend that you use Mozilla Firefox, Safari, or Google Chrome as your web browser. *Internet Explorer is not compatible with your Moodle course site.*

Required Hardware: Web cam, microphone (built-in or external), headphones or working speakers, reliable high speed internet

You are allowed to use a non-programmable, non-graphing calculator for your exams.

Proctored exams are completed online and require the hardware listed above. You should review the technical requirements provided on the ProctorU website and to perform a test on their equipment prior to enrolling in this course.

Technical Requirements: http://www.proctoru.com/tech.php

Equipment Test: http://www.proctoru.com/testitout/

Nature and Purpose of the Course

This is a four-hour calculus course primarily designed for engineering majors and certain other technical majors. You are assumed to be capable in the standard Calculus I topics of taking

limits, continuity, taking derivatives of fairly complicated functions, using derivatives, calculating the definite integral for basic functions, integration by substitution and the standard applications of the definite integral. Students who are not fully prepared for this course should review the chain rule, the basic integral formulas and integration by substitution, trigonometric equations and polar coordinates.

Course Outcomes

Upon completion of this course, students are expected to be able to do the following:

1. Techniques of integration
   a. Approximate integrals using numerical integration
   b. Evaluate integrals using integration by parts
   c. Evaluate integrals of trigonometric forms
   d. Evaluate integrals by trigonometric substitution
   e. Evaluate integrals by the method of partial fractions
   f. Evaluate improper integrals
2. Infinite series
   a. Analyze sequences and their convergence
   b. Use the definition of convergence for series
   c. Use the integral test, the comparison tests, the ratio test, and the root test
   d. Determine power series and their intervals of convergence
   e. Form Taylor series for common functions and master simple applications of Taylor series
3. Parametric equations, polar coordinates, and conic sections
   a. Draw parametric curves and calculate derivatives along parametric curves
   b. Calculate arc length and speed along parametric curves
   c. Draw polar curves and convert between rectangular and polar forms
   d. Calculate arc length and areas using polar coordinates
   e. Sketch conic sections and write the equations of conic sections
4. Vectors
   a. Draw two-dimensional vectors and do simple arithmetic on vectors
   b. Work with three space and three space vectors
   c. Calculate dot products, the angle between vectors, and vector projections
   d. Calculate cross products and know the geometric interpretations of cross products
   e. Write equations of planes meeting the usual conditions
5. Calculus of vector valued functions
   a. Sketch simple vector valued functions
   b. Compute limits and derivatives of vector valued functions
   c. Calculate arc length and speed for valued functions
   d. Calculate curvature, the unit normal, and the osculating circle for simple parameterizations

        e.   Work with uniform circular motion and ballistic motion

6.   Partial derivatives
        a.   Compute partial derivatives of simple functions
        b.   Use Clairault's Theorem

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:

1. The learning objectives of the module
2. Reading assignments from both the lecture material and the textbook
3. Recommended video tutorials in WebAssign if they are available
4. The module assignment, consisting of problems in WebAssign

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.

Suggested Study Techniques

Carefully study the textbook and the lecture material before you begin the module assignments (you should keep a notebook when doing mathematics). This study should include a detailed examination of the illustrative problems and examples from the lecture material, as well the assigned reading. Even though the assignments are online, you should work them neatly in your notebook and correct them (if necessary) after completing them in WebAssign. Note also that you should submit each part of the question as you complete it.

General Instructions

- Carefully review the module objectives to help you focus on the information that will be covered on the exams.
- 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.
- 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.

- 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.

Reading Assignments

To do well in this course, it is essential that you read and study all the course materials that precede the module assignment. Do not begin the module assignment until you have done so. Carefully follow the guidelines and examples provided in the textbook.

You will read an average of 10–12 pages per module. Specific reading assignments will be given in each module.

Topic Outline

This course covers the following specific topics:

Module Topic

01	Integration by Parts
02	Trigonometric Integrals
03	Trigonometric Substitution
04	Integration by Partial Fractions; Strategy
05	Approximate Integration; Improper Integrals
06	Conic Sections
07	Curves Defined by Parametric Equations; Tangents and Areas
08	Polar Coordinates
09	Three-Dimensional Coordinate Systems; Vectors
10	The Dot Product and the Cross Product
11	Lines and Planes

Exam I

12	Cylinders and Quadric Surfaces
13	Vector-Valued Functions; Space Curves; Arc Length; Curvature
14	Motion in Space: Velocity and Acceleration
15	Sequences
16	Infinite Series

17	Integral Test; Comparison Test
18	Alternating Series
19	Absolute and Conditional Convergence; The Root Test and Ratio Test
20	Power Series
21	Taylor and Maclaurin Series
	Exam II
	Final Examination

Module Assignments

Your module assignments will consist of problems in WebAssign. You will have five attempts for each assignment. After your first two attempts, you will be able to try another version. Do not get too dependent on this help, as you will not have it on the exams. When you complete the assignments, you should make sure that you can work each exercise on your own, without reference to the textbook.

When you have completed the assignment in WebAssign, you must return to Moodle and submit an assignment verification. This is so that your instructor can check your work and record your grade in the Moodle grade book. This is your final score for the module. *If you do not submit your verifications, your instructor will not know that your module is ready for grading.*

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.

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

Module assignments count 100 points each. In addition, there are three proctored examinations worth 100 points each. Exam I covers material from Modules 01–11, Exam II covers Modules 12–21, and the final exam, which is comprehensive, covers material from Modules 01–21. You will take the final exam after completing Exam II.

Your exams consist of problems that are similar to those in the module assignments, and you will have a maximum of three hours to complete each one. When you have completed the exam in WebAssign, you must return to Moodle and submit a verification under the proctor's supervision so that your instructor can record your grade.

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 may also use a basic calculator.

The following items are *not permitted*:

- Textbooks
- Notes
- Formula sheets
- Online materials (assignments, video solutions, WebAssign learning aids)
- Word-processing or spreadsheet software
- Graphing or programmable calculator

This means that you must know the theorems, definitions, and procedures that have been presented in the course.

The course grade = average of module assignments + exam scores. Each component is weighted by predetermined percentages.

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

If you earn a passing average on the examinations, your grade will be computed as follows.

Component	Weight (%)
Average of Module Assignments	20%
Exam I	25%
Exam II	25%
Final Exam	30%

The following grading scale applies:

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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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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 Exam II in order to unlock access to the final exam. Please allow at least 7 days for this grade to be posted in the grade book.

To read the full exam policy and other policy statements, visit Continuing Education's homepage. Click on "Extended Campus," select "Online Distance Learning," and then click "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 in Moodle. 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).

There is a separate charge for each proctored exam. You should schedule your exams about a week before you are ready to take them in order to avoid any additional charges.

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, a microphone (built-in or external), headphones or working speakers*, and *reliable high speed internet* to use this service. A complete list of technical requirements is available from the ProctorU website.

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 at (http://sites01.lsu.edu/wp/registraroffice/student-services/transcript-request/)

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