



# SYLLABUS

**AU MATH 191 950 Calculus I**

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## Consortium of Adventist Colleges and Universities

### Self-Paced Courses

This course follows a self-paced online format. You have 180 days from your selected start date to complete the course. The last day to withdraw with a full refund is 15 days after your start date.

### Instructor Contact

Please refer to course in Learning Hub for the teacher contact information.

### Communication with the Instructor

It is important to remember that while the Internet is available 24 hours a day, your instructor is not. You can expect that your instructor will respond to e-mail message to you within *2 business days* during the week and may not be available to respond on weekends.

### Other Assistance

Username and password assistance	<a href="mailto:helpdesk@andrews.edu">helpdesk@andrews.edu</a>	(269) 471-6016
Enrollment and cancellations	<a href="mailto:sderegister@andrews.edu">sderegister@andrews.edu</a>	(269) 471-6323
Bookstore	<a href="https://www.andrews.edu/bookstore/">https://www.andrews.edu/bookstore/</a>	
Technical assistance with Learning Hub	<a href="mailto:dlit@andrews.edu">dlit@andrews.edu</a>	(269) 471-3960
Technical assistance with your Andrews account	<a href="https://andrews.edu/hdchat/chat.php">andrews.edu/hdchat/chat.php</a>	
Exam requests	<a href="mailto:sdeexams@andrews.edu">sdeexams@andrews.edu</a>	(269) 471-6566
Student Services Support & FAQ	<a href="http://www.andrews.edu/distance/students/">www.andrews.edu/distance/students/</a>	
Any other questions: <a href="mailto:sde@andrews.edu">sde@andrews.edu</a> , (800) 782-4769 or (269) 471-6570		

## Part 1: Course Information

### Course Description

*Andrews University*

This course is a standard introduction to single-variable calculus. It includes limits, continuity, derivatives, applications, and integration up through and including substitution and integration by parts. Formal definitions of the limit, derivative, and Riemann integral are included. Proofs of standard theorems, including the Fundamental Theorem of Calculus, are given. Fulfills the General Education Mathematics reasoning requirement.

### Course Prerequisites

*Andrews University*

MPE>P5 or MATH 167 or MATH 168 with a grade of C or better

### Course Learning Outcomes

- Understand the foundational concepts of the differential Calculus.
- Learn to use the derivative as a tool for understanding function behavior.
- Engage in mathematical thinking, reasoning, and problem solving.
- Become proficient in expressing clear and accurate solutions to calculus problems in written form.
- Catch a glimpse of the power of calculus and the limitless aspects of God's character.

### Required Text/Material

There are two textbook options. The first (recommended) option includes text for both Calculus I and Calculus II. The second option includes just the text for Calculus I.

- Stewart, James, *Calculus: Concepts and Contexts*, 4<sup>th</sup> edition (2010), Brooks-Cole, ISBN 9780495557425.
- Stewart, James, *Single Variable Calculus: Concepts and Contexts*, 4<sup>th</sup> edition (2010), Brooks-Cole, ISBN 9780495559726.

### Credit Hour and Commitment

This course is offered for 4 credits; therefore, it is expected that you would spend 12 hours per week during the 15 week duration of the class. It is suggested that you divide your weekly study time as follows:

- Textbook Reading/Powerpoint Slides: 2-3 hours
- Online Lectures: 2-3 hours
- Discussion Posts: 30 minutes
- WeBWorK Assignments: 5 hours 30 minutes
- Solution-Write Up Assignments: 1 hour

This schedule will vary somewhat throughout the course, especially during weeks in which exams are scheduled.

## Part 2: Course Methods and Delivery

### Methods of Instruction

Methods of instruction include WeBWorK assignments, solution write-ups, journal posts, and two exams. Regular participation in the course is essential to good performance.

### Course/Technical Requirements

- Internet connection (DSL, LAN, or cable connection desirable).

### LearningHub Access

This course is delivered online through LearningHub at <http://learninghub.andrews.edu>

Your username and password are your Andrews username and password. You need to activate your username and password to access LearningHub.

Please do this online here:

<https://vault.andrews.edu/vault/pages/activation/information.jsp> if you haven't already. (269) 471-6016 or email [helpdesk@andrews.edu](mailto:helpdesk@andrews.edu) if you need assistance.

If you need technical assistance at any time during the course, or to report a problem with LearningHub, please email [dlit@andrews.edu](mailto:dlit@andrews.edu) or call 269-471-3960.

## Part 3: Course Requirements

**Important Note:** Activity and assignment details will be explained in detail within each learning module. If you have any questions, please contact your instructor.

## Your Schedule

In Learning Hub, you will access online lessons, course materials, and resources. This course is self-paced. You must complete the course within 180 days. This is the Consortium policy. You may have a stricter deadline imposed by graduation, financial aid, or other restrictions.

Start by creating a schedule for completion of the course.

- Determine your deadline. Do you need a transcript sent to your home institution?
- Working from your deadline, count backwards. Allow 2 weeks after you take your final exam for your final grade to be calculated. Allow another 2 weeks for the transcript to be processed and sent.
- Now use the suggested schedules to create a schedule for yourself that ensures completion 4 weeks before your deadline.

Submit your course plan to your instructor within Learning Hub AND discipline yourself to make regular progress.

## Assessment Descriptions

These assignments give you the opportunity to demonstrate mastery of the course material. They are divided into several categories, each with a specific purpose and weight.

- **WeBWorK Assignments (15% of your grade)**  
Mathematics is not a spectator sport! Reading your textbook and watching lecture videos is typically not enough for you to master the material. As an athlete must spend hours practicing in order to excel in his or her sport, so you must practice your Calculus skills if you wish to do well on exams.

The online homework system WeBWorK will help you do just that by checking your answers and giving you instantaneous feedback. After reading your textbook and watching the videos for a section, print out the associated WeBWorK assignment and work through the problems on paper. When you are comfortable with your answers (after possibly seeking help), return to WeBWorK and submit them. Don't worry if you get them wrong the first time. In most cases you have an unlimited number of attempts on each problem (but don't just guess either—that defeats the purpose of doing the homework to learn the material). If WeBWorK marks one of your answers wrong, go back and check your work or seek assistance using WeBWorK's Email Instructor button.

- **Solution Write-Up Assignments (10% of your grade)**  
While WeBWorK can check your final answer, it does not check your solution process, your ability to present that solution, or your ability to construct a basic proof or draw a graph. In order to do well in the exams, you must not only be able to find the right answer, but express your solution using correct mathematical notation in a logical and well-organized fashion. To help you practice these skills, you will be asked to complete a solution write-up assignments for each chapter covered in the course. In these assignments you will present solutions to selected problems from your textbook. You will then scan or take a picture of your work and upload it to Moodle.
- **Discussion Posts (5% of your grade)**  
Several times during the term you will be asked to respond to a discussion question. These questions promote the integration of faith and learning by asking you to reflect on the connections between mathematics and spiritual issues. Discussion questions involve the entire class and you will be expected to both answer the question yourself and



comment on fellow class members' responses. The following rubric will be used to evaluate your initial posts and responses

	<b>Excellent (5)</b>	<b>Average (3)</b>	<b>Below Average (1)</b>	<b>Unacceptable (0)</b>
Response is:	well thought-out, addressing the question carefully and completely.	reasonable, but does not address all aspects of the question, addresses them carelessly.	minimal, showing little thought and missing many question aspects completely.	off topic or completely missing.

- **Midterm Exams (2 x 20 = 40% of your grade)**

There will be two midterm exams during the term. The first covers the material from chapters one and two. The second covers chapters the last section of chapter two, chapter three and most of chapter four. The exams are administered by a proctor (see below) and will be taken with pencil and paper. You may use a simple scientific calculator (without symbolic math capabilities) on both exams, but you must show all steps in your solutions. Solutions lacking neatness and/or proper evidence will be discounted at the instructor's discretion.

### **Final Exam (30% of your grade)**

The final exam is comprehensive, but emphasizes the material from after the second exam. That is the last two sections of chapter four and all of chapter five. The format of the final is similar to that of the midterm, with the same rules applying.

### **Rubrics**

Feedback on assignments and exams will be provided in a timely manner, as outlined below.

- **WeBWorK Assignments**

Feedback is provided instantaneously by the WeBWorK system. If you have questions, or believe that you have entered a correct solution that is not being accepted, please email your instructor using the Email Instructor button at the bottom of each WeBWorK page or post a question to the Homework Help Forum at the top of the course homepage in Moodle.

- **Solution Write-Up Assignments**

Your instructor will grade your write-up assignments and post your score, along with comments on any improvements you should make to your solution writing, within one week of the date on which you submit the assignment.

- **Discussion Posts**

Feedback on your discussion posts will be provided within one week of the posting due date.

### **Exams**

Exams must be completed in the presence of an approved proctor without the assistance of books, notes, devices or outside help unless otherwise specified in the exam review and exam directions.

Please review the [current policy on approved proctors](#) before completing the exam request form, which is linked through your course space. It is your responsibility to make arrangements for an approved proctor (unless living near the main campus) and to complete the exam request form

at least two weeks prior to each exam date. Bring an official photo ID to show the proctor at the start of the exam session.

The midterm exams are worth 40% of your grade. You are allowed 120 minutes to complete these exams. The final exam is worth 30% of your grade. You are allowed 120 minutes to complete this exam.

If you cannot take your exam within the period noted in the email regarding exam arrangements, email the instructor, copying [sdeexams@andrews.edu](mailto:sdeexams@andrews.edu) with the reason you cannot make this deadline, and a proposed date as close to the scheduled period as possible.

The proctor is responsible for printing and securing the exam until the test date. Once completed, the proctor is responsible for returning the exam. You may not access the paper exam either before or after it is taken. Instructors provide feedback on exams other than the final exam. Exam grades can be viewed in the course space, and the final course grade is included in the University Academic Record accessible through your IVUE page.

**Suggested schedule for completion in 8 weeks:**

<b>Modules</b>	<b>Readings</b>	<b>Assignments</b>	<b>Course Objectives Met (example CO2)</b>
Intro	Orientation Writing Expectations	Submit: Schedule Tell About Me Academic Honesty	
1	1.1-1.3: Review of Functions Apx. C: Trigonometry 1.5: Exponential Functions 1.6: Inverse Functions and Logarithms 1.7: Parametric Curves	Plagiarism Assignment Introductions Forum Post WeBWorK 1.1-1.3 WeBWorK Apx.C WeBWorK 1.5 WeBWorK 1.6 WeBWorK 1.7 Solution Write-Up Chapter 1	
2	2.1: The Tangent and Velocity Problems 2.2 The Limit of a Function Apx. D: Precise Definition of a Limit 2.3: Calculating Limits Using the Limit Laws 2.4: Continuity 2.5: Limits Involving Infinity	WeBWorK 2.1 WeBWorK 2.2 WeBWorK Apx. D Discussion Question #1 WeBWorK 2.3 WeBWorK 2.4 WeBWorK 2.5	
3	2.6: Derivatives and Rates of Change 2.7: The Derivative of a Function 2.8: What does $f'$ Say about $f$ ? 3.1: Derivatives of Polynomials & Exponentials 3.2: The Product and Quotient Rules	WeBWorK 2.6 WeBWorK 2.7 Exam I WeBWorK 2.8 Solution Write-Up Chapter 2 WeBWorK 3.1 WeBWorK 3.2	
4	3.3: Derivatives of Trigonometric Functions 3.4: the Chain Rule 3.5: Implicit Differentiating 3.6: Inverse Trig Functions & Their Derivatives 3.7: Derivatives of Logarithmic Functions	WeBWorK 3.3 WeBWorK 3.4 Discussion Question #2 WeBWorK 3.5 WeBWorK 3.6 WeBWorK 3.7	
5	3.9: Linear Approximations and Differentials 4.1: Related Rates 4.2: Maximum and Minimum Values 4.3: Derivatives and the Shapes of Curves 4.5: Indeterminate Forms and l'Hopital's Rule	WeBWorK 3.9 Solution Write-Up Chapter 3 WeBWorK 4.1 WeBWorK 4.2 WeBWorK 4.3 WeBWorK 4.5	
6	4.6: Optimization Problems 4.7: Newton's Method 4.8: Antiderivatives	WeBWorK 4.6 Exam II WeBWorK 4.7 WeBWorK 4.8 Solution Write-Up Chapter 4	
7	5.1: Areas and Distances 5.2: The Definite Integral 5.3: Evaluating Definite Integrals 5.4: The Fundamental Theorem of Calculus	WeBWorK 5.1 WeBWorK 5.2 Discussion Question #3 WeBWorK 5.3 WeBWorK 5.4	
8	5.5: The Substitution Rule 5.6 Integration by Parts	WeBWorK 5.5 WeBWorK 5.6 Solution Write-Up Chapter 5	
Final Exam			

**Suggested schedule for completion in 16 weeks:**

<b>Modules</b>	<b>Readings</b>	<b>Assignments</b>	<b>Couse Objectives Met (example CO2)</b>
Intro	Orientation Writing Expectations	Submit: Schedule	

Modules	Readings	Assignments	Couse Objectives Met (example CO2)
		Tell About Me Academic Honesty	
1	1.1-1.3: Review of Functions Apx. C: Trigonometry	Plagiarism Assignment Introductions Forum Post WeBWorK 1.1-1.3 WeBWorK Apx.C	
2	1.5: Exponential Functions 1.6: Inverse Functions and Logarithms 1.7: Parametric Curves	WeBWorK 1.5 WeBWorK 1.6 WeBWorK 1.7 Solution Write-Up Chapter 1	
3	2.1: The Tangent and Velocity Problems 2.2 The Limit of a Function Apx. D: Precise Definition of a Limit	WeBWorK 2.1 WeBWorK 2.2 WeBWorK Apx. D Discussion Question #1	
4	2.3: Calculating Limits Using the Limit Laws 2.4: Continuity 2.5: Limits Involving Infinity	WeBWorK 2.3 WeBWorK 2.4 WeBWorK 2.5	
5	2.6: Derivatives and Rates of Change 2.7: The Derivative of a Function	WeBWorK 2.6 WeBWorK 2.7 Exam I	
6	2.8: What does $f'$ Say about $f$ ? 3.1: Derivatives of Polynomials & Exponentials 3.2: The Product and Quotient Rules	WeBWorK 2.8 Solution Write-Up Chapter 2 WeBWorK 3.1 WeBWorK 3.2	
7	3.3: Derivatives of Trigonometric Functions 3.4: the Chain Rule	WeBWorK 3.3 WeBWorK 3.4 Discussion Question #2	
8	3.5: Implicit Differentiating 3.6: Inverse Trig Functions & Their Derivatives 3.7: Derivatives of Logarithmic Functions	WeBWorK 3.5 WeBWorK 3.6 WeBWorK 3.7	
9	3.9: Linear Approximations and Differentials 4.1: Related Rates	WeBWorK 3.9 Solution Write-Up Chapter 3 WeBWorK 4.1	
10	4.2: Maximum and Minimum Values 4.3: Derivatives and the Shapes of Curves 4.5: Indeterminate Forms and l'Hopital's Rule	WeBWorK 4.2 WeBWorK 4.3 WeBWorK 4.5	
11	4.6: Optimization Problems	WeBWorK 4.6 Exam II	
12	4.7: Newton's Method 4.8: Antiderivatives	WeBWorK 4.7 WeBWorK 4.8 Solution Write-Up Chapter 4	
13	5.1: Areas and Distances 5.2: The Definite Integral	WeBWorK 5.1 WeBWorK 5.2 Discussion Question #3	
14	5.3: Evaluating Definite Integrals 5.4: The Fundamental Theorem of Calculus	WeBWorK 5.3 WeBWorK 5.4	
15	5.5: The Substitution Rule 5.6 Integration by Parts	WeBWorK 5.5 WeBWorK 5.6 Solution Write-Up Chapter 5	
16	FINAL EXAM		

### Completing Assignments

All assignments for this course will be submitted electronically through Learning Hub unless otherwise instructed. Assignments and exams must be completed **within 180 days** of course registration date. This timeframe is subject to change depending on deadlines set by your home institution.



## Part 4: Grading Policy

### Graded Course Activities

Percent %	Description
15	WeBWorK
10	Solution Write-Ups
5	Journal Posts
$2 \times 20 = 40$	Midterm Exams
30	Final Exams
100	Total Percent Possible

### Viewing Grades in Learning Hub

- Click into the course.
- Click on the **Grades** link in the Settings Box to the left of the main course page.

### Letter Grade Assignment

Letter Grade	Percentage
A	93-100%
A-	90-92%
B+	88-89%
B	83-87%
B-	80-82%
C+	78-79%
C	73-77%
C-	70-72%
D	60-69%
F	0-59%

## Part 5: Course Policies

### Withdrawal and Incomplete Policies

The current withdrawal policy can be found online at <http://www.andrews.edu/distance/students/withdrawal.html>. The incomplete policy is found online at <http://www.andrews.edu/weblmsc/moodle/public/incompletes.html>.

### Maintain Professional Conduct Both in the Classroom and Online

The classroom is a professional environment where academic debate and learning take place. Your instructor will make every effort to make this environment safe for you to share your opinions, ideas, and beliefs. In return, you are expected to respect the opinions, ideas, and beliefs of other students—both in the face-to-face classroom and online communication. Students have the right and privilege to learn in the class, free from harassment and disruption.

### Academic Accommodations

Students who require accommodations may request an academic adjustment as follows:

1. Read the Andrews University Disability Accommodation information at <https://www.andrews.edu/services/sscenter/disability/>
2. Download and fill in the disability form at <http://www.andrews.edu/services/sscenter/disability/accommodationsreqform.pdf> . Preferably type answers. To save a digital copy, 1) print to file and save or 2) print and scan. Email the completed form and disability documentation (if any) to [success@andrews.edu](mailto:success@andrews.edu) or fax it to 269-471-8407.
3. Email [sdestudents@andrews.edu](mailto:sdestudents@andrews.edu) to inform the School of Distance Education that a disability has been reported to Student Success.

### **Commitment to Integrity**

As a student in this course, and at the university, you are expected to maintain high degrees of professionalism, commitment to active learning, participation in this course, and integrity in your behavior in and out of this online classroom.

### **Honesty**

Using the work of another student or allowing work to be used by another student jeopardizes not only the teacher-student relationship but also the student's academic standing. Lessons may be discussed with other students, tutors may help to guide a student's work, and textbooks, encyclopedias and other resource materials may be used for additional assistance, but the actual response must be the student's own work.

Exams must be completed in the presence of an approved supervisor without the assistance of books, notes, devices or outside help unless otherwise specified in the exam directions. The student should have no access to the exam either before or after it is taken. A student who gives information to another student to be used in a dishonest way is equally guilty of dishonesty.

Any violation of this policy will be taken before the Higher Education Academic and Curriculum Committee for appropriate punitive action.

## **Part 6: Bibliography**

Discussion questions were developed in conjunction with the following sources:

- World Science Festival ([www.worldsciencefestival.com/](http://www.worldsciencefestival.com/))
- The Veritas Forum ([www.veritas.org/](http://www.veritas.org/))

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