

# Math 121

## Fall 2024 Syllabus

*It is the prerogative of the Math 121 team to change the course during the term at our discretion. Any changes will be communicated via Blackboard and email, so be sure to check both frequently. Course announcements, exam information, and other details will be regularly posted to Blackboard.*

*You are expected to be fully aware of the following policies and expectations, so review this information carefully and ask your instructor if you have further questions.*

### Contact

**Course Coordinator:** Dimitri Papadopoulos

**Email:** [dp399@drexel.edu](mailto:dp399@drexel.edu)

**Notes and Other Resources:** <https://wealldomath.com>

**Office:** Korman 224

### Prerequisites

Students taking this course are expected to have completed one of the following:

- MATH 050 - Minimum Grade: CR
- MATH 110 - Minimum Grade: C-
- MATH 105 - Minimum Grade: C-
- DU Calc Placement Exam - Minimum Grade: 70
- Elements of PreCalculus - Minimum Grade: P

### Course Description and Expectations

The subject matter of the course is differential calculus for functions of a single variable. You will be expected to acquire problem solving skills appropriate to the material, including (but not limited to) the following:

- Understanding the concept of a limit and being able to evaluate elementary examples of indeterminate forms.
- Recognizing when a function is continuous and knowing certain implications-such as the Intermediate Value Theorem.

- Being able to state and apply the definition of a derivative, understanding its relationship to tangent lines and instantaneous rates of change, and recognizing when a function is not differentiable.
- Computing derivatives of sums, differences, products, quotients, and compositions of elementary functions.
- Distinguishing between implicitly and explicitly defined functions and being able to determine the derivative of an implicitly defined function.
- Using information from the first and second derivative to analyze the behavior of a function and then applying that analysis to create a reasonable sketch of a function.
- Using extreme value theorem, derivatives, and other appropriate techniques to locate absolute extrema of a function on a given interval and apply these skills to solve applied optimization problems.

### Attendance

Regular attendance is essential for success in this course. You are responsible for all the material discussed in class. The quarter system moves very quickly – if you don't do your work regularly, it is easy to fall behind.

### Calculator Policy

Though calculators will not be necessary to complete the quizzes and exams you will take this quarter, you may use a TI-30XIIS. This calculator is available on [Amazon](#) for about \$10. *This specific calculator is the only* electronic device that you may use on quizzes and exams this quarter.

### Resources

There is no required textbook for this course.

For each section covered in class we have crafted additional practice problems which have been chosen to illustrate important concepts and techniques that you are expected to master. These problems can be found on the main course website, which will be linked in Blackboard. They are for your benefit and should be worked regularly and in detail. It is only by doing the problems yourself that you will acquire the skills needed for proficiency in the course. Some of these problems will be discussed in lecture, but it is your responsibility to do the work and look at all of the problems. These problems will not be turned in or graded.

As a supplementary resource, consider Paul's Online Notes: <https://tutorial.math.lamar.edu>

### WebWork

We will have weekly homework assignments through a free platform called WebWork. You will access these homework assignments through Blackboard. There's no account setup that you need to do as WebWork will send your scores directly to Blackboard. One thing to be aware of is that your grade will update automatically as you work on each assignment

up until the due date. So, if you see a low score in Blackboard prior to the due date for an assignment, don't be alarmed.

### **Exams**

We will have two midterm exams and one final exam. The rooms will be announced the week before each exam.

- Exam 1: Friday, October 18th at 8:00 AM
- Exam 2: Friday, November 15th at 8:00 AM

### **Quizzes**

You will take a total of six quizzes in class. The lowest quiz grade will be dropped, so your grade will depend on only your five highest quiz grades.

### **Surveys**

As part of a research project, you will be provided two surveys to complete on Blackboard. These are purely voluntary, but we will award you extra credit for completing them.

## Grading

The course grade will breakdown as follows:

Category	Percentage
WebWork	10%
Quizzes	15%
Midterms	25% each
Final	25%
Extra Credit Surveys	+ 2%

Letter grades will be assigned as follows:

Letter	Total Score
A+	100 - 97.5
A	97.4 - 93.0
A-	92.9 - 90.0
B+	89.9 - 87.0
B	86.9 - 83.0
B-	82.9 - 80.0
C+	79.9 - 77.0
C	76.9 - 73.0
C-	72.9 - 70.0
D+	69.9 - 67.0
D	66.9 - 60.0
F	59.9 - 0

## Tutoring Services

In addition to your instructor's office hours, you can receive extra assistance in the Math Resource Center (MRC) located in Korman 249. The MRC is staffed by faculty and teaching assistants who can help you with your math courses. No appointment is necessary. Hours and staff schedules can be found at: <http://drexel.edu/math/resources/undergraduate/mrc/>

## Disabilities and Accommodations

Students requesting accommodations due to a disability at Drexel University need to request a current Accommodations Verification Letter (AVL) in the Clock database before accommodations can be made. These requests are received by Disability Resources (DR), who then issues the AVL to the appropriate contacts. For additional information, visit the DR website.

- DR Website: <https://drexel.edu/oed/disabilityResources/overview/>

- Clock Database: <https://drexel.edu/oed/disabilityResources/students/>
- DR Phone Number: 215.895.1401
- DR E-mail Address: [disability@drexel.edu](mailto:disability@drexel.edu)

### **Academic Honesty**

Cheating and other forms of academic misconduct are serious offenses and are dealt with harshly, e.g. at the very least a 0 on an exam and a letter sent to the Office of Student Conduct. Students should be familiar with the following policies:

- [http://www.drexel.edu/provost/policies/academic\\_dishonesty.asp](http://www.drexel.edu/provost/policies/academic_dishonesty.asp)
- [http://www.drexel.edu/studentaffairs/community\\_standards/studentHandbook/general\\_information](http://www.drexel.edu/studentaffairs/community_standards/studentHandbook/general_information)

### **Course Drop & Withdrawal Policies**

Students should be familiar with the following policies:

- [http://www.drexel.edu/provost/policies/course\\_drop.asp](http://www.drexel.edu/provost/policies/course_drop.asp)
- [http://www.drexel.edu/provost/policies/pdf/course\\_withdrawal.pdf](http://www.drexel.edu/provost/policies/pdf/course_withdrawal.pdf)

## Schedule

Week	Topics	Notes
1	Intuitive Approach to Limits Computing Limits	Mon. 9/23: Classes Begin
2	Limits at Infinity Continuity Limits & Continuity of Trig Functions	Mon. 9/30: Last day to add/drop
3	Tangent Lines & Rates of Change The Definition of the Derivative	Mon. 10/14: University Holiday Indigenous People's Day
4	Techniques of Differentiation Product & Quotient Rules	<b>Fri. 10/18: EXAM 1</b>
5	Derivatives of Trig Functions The Chain Rule	
6	Implicit Differentiation Derivatives of Logarithmic Functions	
7	Derivatives of Exponential & Inverse Trig Functions Local Linear Approximation	
8	Related Rates L'Hôpital's Rule	<b>Fri. 11/15: EXAM 2</b> Last day to withdraw
9	Analysis of Functions Pt. 1 Analysis of Functions Pt. 2	Tue. 11/26 Thanksgiving holiday begins (10pm)
10	Absolute Extrema	
11	Applied Max-Min Problems	
Finals	The Final Exam schedule will be announced by the registrar	