



# LearnHub

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# LearnHub

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## Welcome back

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Continue your learning journey

**Daily Streak**

Keep learning to maintain your streak!

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M

T

3

W

**In Progress**

Mathematics

65% complete

**Calculus 101**

Computer Science

30% complete

**Python Programming**

Humanities

15% complete

**Art History**

Logged in successfully!

Welcome to LearnHub.

**Continue Learning****Introduction to Calculus**

Calculus 101

⌚ 15 min

**Python Data Structures**

Python Programming

⌚ 12 min

**Renaissance Art Overview**

Art History

⌚ 20 min



JD

**Jamie Doe**

jamie.doe@example.com

**8**

Courses In Progress

**12**

Completed Courses

**48**

Hours Studied

**15**

Achievements

**Account**

Settings

Help &amp; Support

Logout

## Profile Settings

### Display Name

Alex Johnson

### Bio

Computer Science student at State University

**Save Profile**

## Notification Settings

### Push Notifications

Receive notifications about your learning progress



### Daily Reminders

Get daily reminders to maintain your learning streak



## App Settings

### Language

**English**   Spanish   French

### Theme

**Light**   Dark   System

 Search courses...

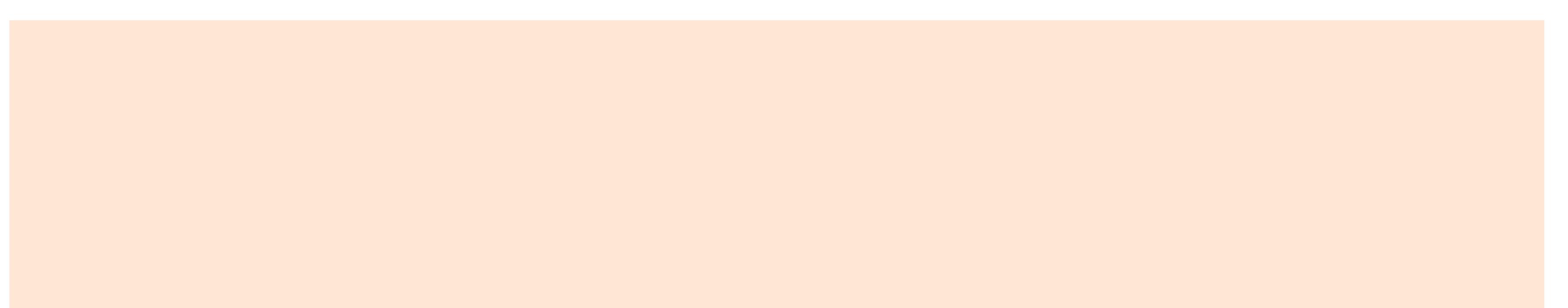
## Categories

[All Courses](#)[Mathematics](#)[Computer Science](#)[Humanities](#)[Science](#)[Business](#)**Mathematics****Calculus 101**

12 lessons

**Computer Science****Python Programming**

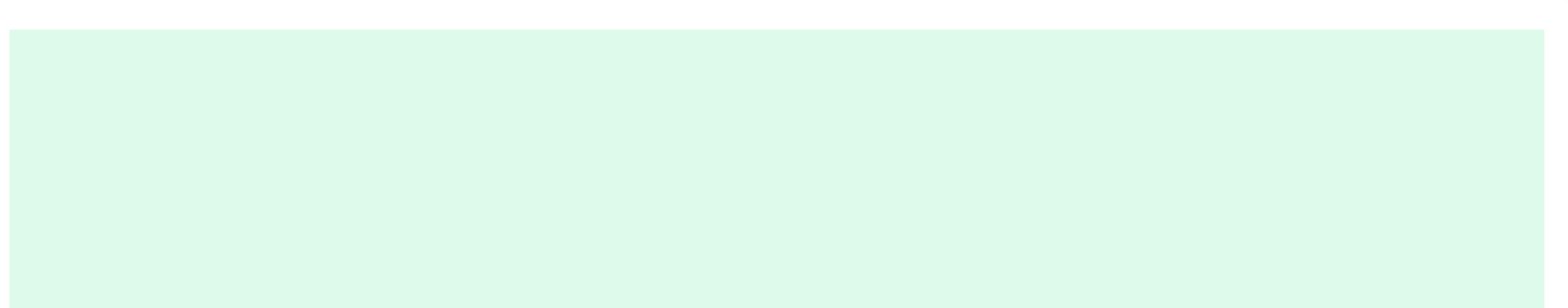
8 lessons

**Humanities****Art History**

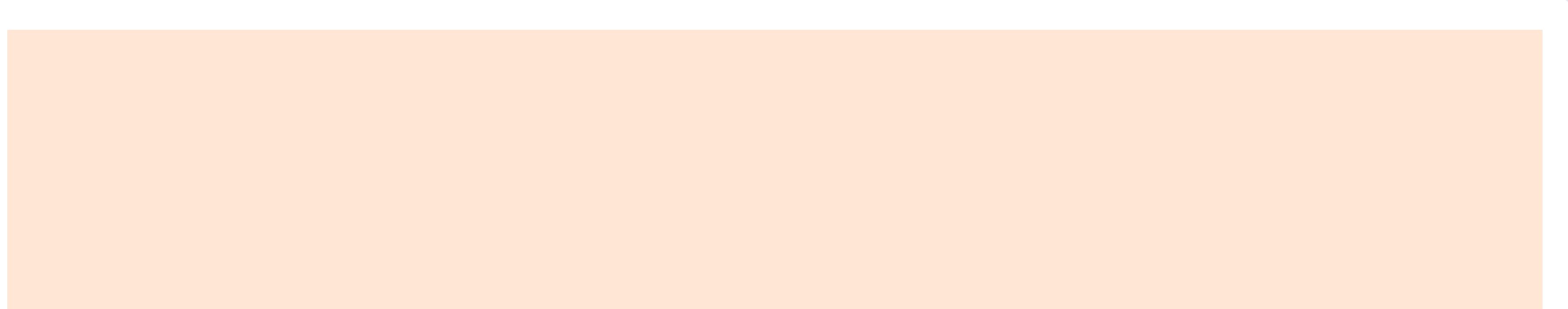
10 lessons

**Science****Chemistry Fundamentals**

14 lessons

**Business****Introduction to Economics**

9 lessons

**Mathematics****Linear Algebra**

11 lessons

# Calculus 101

By Prof. Jane Smith

Learn the fundamentals of calculus, from limits and derivatives to integrals and applications. This comprehensive course covers all the essential topics needed to build a strong foundation in calculus.

## Course Progress

2 of 12 lessons completed

Resume Course 

## Course Content

### 1 Introduction to Limits

⌚ 15 min



### 2 Continuity and Differentiability

⌚ 20 min



### 3 Introduction to Calculus

⌚ 25 min



### 4 Derivatives and Rules

⌚ 30 min



### 5 Applications of Derivatives

⌚ 35 min



### 6 Introduction to Integration

⌚ 25 min



### 7 Techniques of Integration

⌚ 30 min



### 8 Applications of Integration

⌚ 35 min



### 9 Improper Integrals

⌚ 20 min



### 10 Differential Equations

⌚ 25 min



### 11 Sequences and Series

⌚ 30 min



### 12 Final Review

⌚ 40 min





## Calculus 101

Lesson 3 of 12

2 completed

10 remaining

## Introduction to Calculus

15 min read

*This introductory lesson covers the basic concepts of calculus including limits, derivatives, and integrals.*

Calculus is a branch of mathematics that focuses on studying rates of change and accumulation. It provides a framework for modeling systems where there is change, and for predicting future behavior based on current conditions.

There are two main branches of calculus: differential calculus and integral calculus. Differential calculus is concerned with rates of change and slopes of curves, while integral calculus focuses on accumulation of quantities and areas under or between curves.

One of the fundamental concepts in calculus is the limit. A limit is the value that a function approaches as the input approaches some value. Limits are essential for defining derivatives and integrals.

The derivative of a function represents the rate at which the function is changing at a given point. Geometrically, it can be interpreted as the slope of the tangent line to the function's graph at that point.

The integral of a function, on the other hand, represents the accumulation of quantities. It can be interpreted geometrically as the area under the curve of the function.

 Calculus 101

Lesson 3 of 12

 2 completed

10 remaining

[Back to Lesson](#)

Question 1 of 5

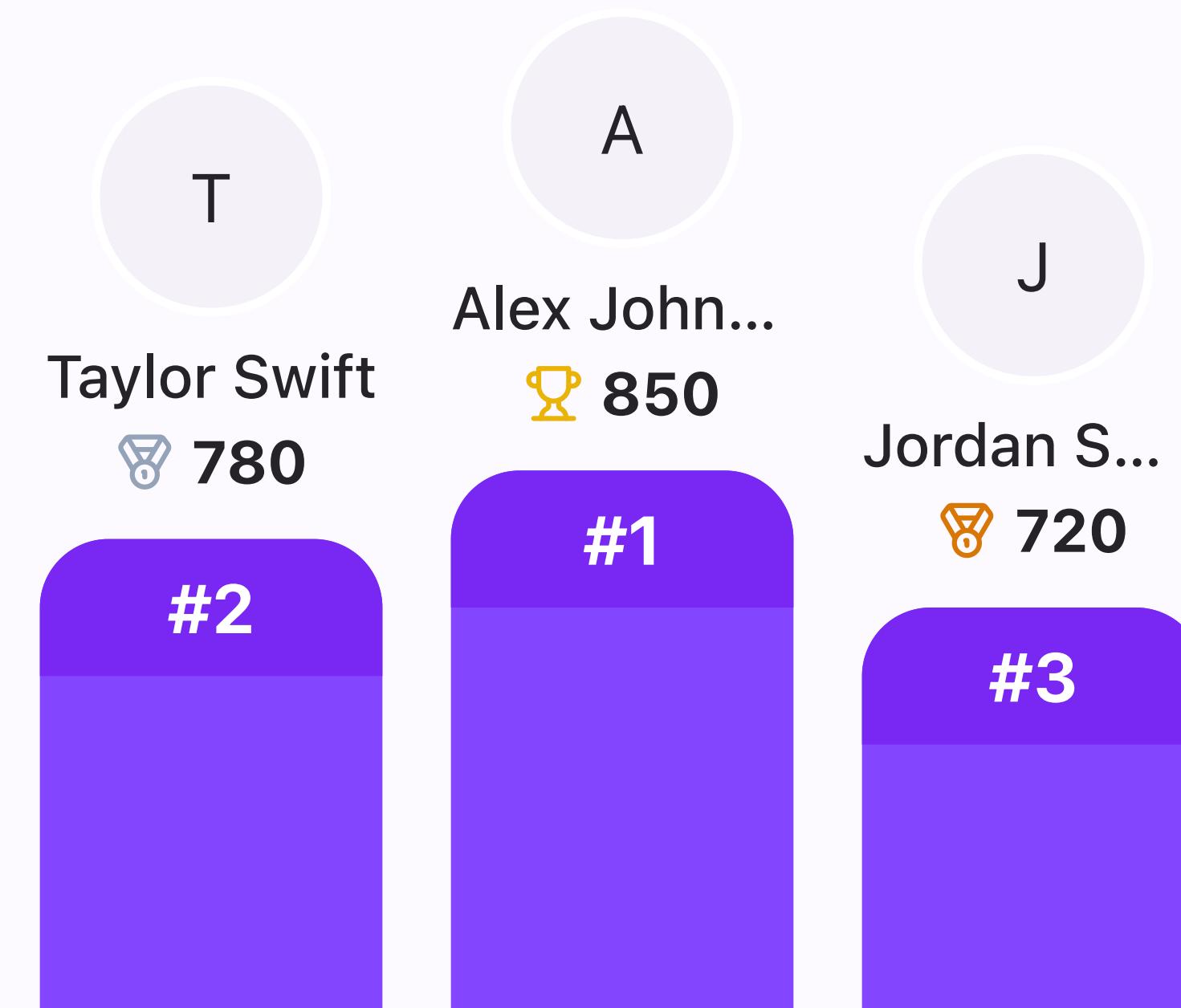
**What is the derivative of  $f(x) = x^2$ ?** A  $f'(x) = x$  B  $f'(x) = 2x$  C  $f'(x) = 2$  D  $f'(x) = x^2$ [< Previous](#)[Check Answer](#)



See how you rank among other learners

This Week

All Time



4 M Morgan Stanley

650

5 J Jamie Rodriguez You

610

6 C Casey Williams

590

7 R Riley Thompson

560

8 Q Quinn Martinez

530

[← Admin Dashboard](#)[Export Report](#)

Total Users

**1,247**+12% from last month

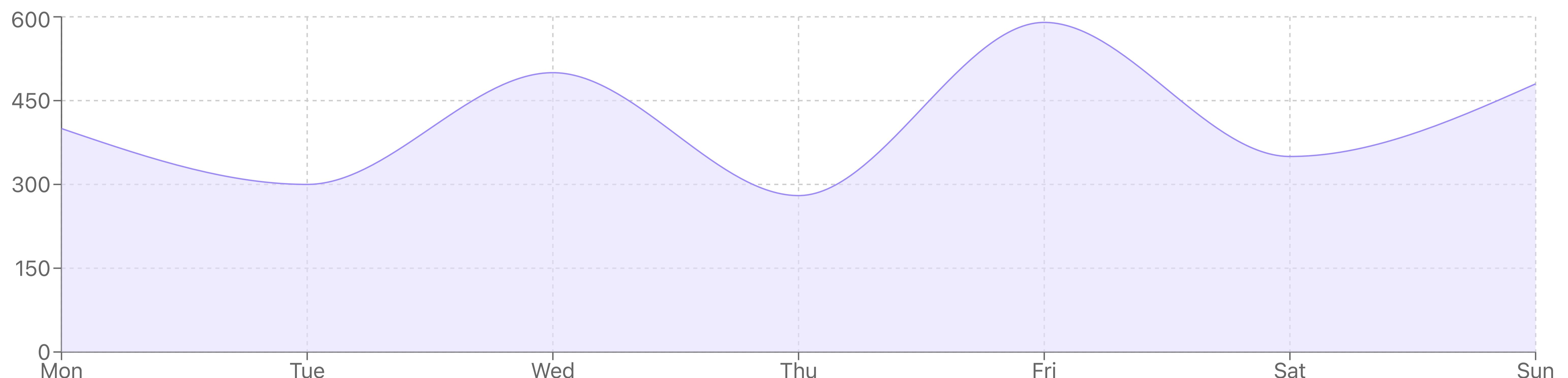
Active Courses

**24**+3 new this month

Quiz Completion

**68%**+5% from last month

## User Activity (Last 7 Days)

[Manage Courses](#)[Recent Users](#)

## Course Overview

[+ Add Course](#)

| Featured | Course Name                      | Enrolled     | Completion Rate                    | Actions                                     |
|----------|----------------------------------|--------------|------------------------------------|---|
|          | Introduction to Computer Science | 247 students | <div style="width: 68%;">68%</div> | <a href="#">Edit</a> <a href="#">Delete</a> |
|          | Data Structures and Algorithms   | 183 students | <div style="width: 42%;">42%</div> | <a href="#">Edit</a> <a href="#">Delete</a> |
|          | Web Development Fundamentals     | 315 students | <div style="width: 79%;">79%</div> | <a href="#">Edit</a> <a href="#">Delete</a> |
|          | Machine Learning Basics          | 156 students | <div style="width: 35%;">35%</div> | <a href="#">Edit</a> <a href="#">Delete</a> |