

Syllabus for Paul Dawkins Math 2413

This is the order of topics that I hope to follow this semester.

Topic

Review*

Functions
Inverse Functions
Trig Functions
Solving Trig Equations
Exponential Functions
Logarithm Functions
Exponential and Logarithm Equations
Common Graphs

Limits

Tangent Lines and Rates of Change
The Limit
One-Sided Limits
Limit Properties
Computing Limits
Infinite Limits
Limits At Infinity, Part I
Limits At Infinity, Part II
Continuity
The Definition of the Limit**

Derivatives

The Definition of the Derivative
Interpretation of the Derivatives
Exam 1 - Tentative Date : September 20, 2018
Differentiation Formulas
Product and Quotient Rule
Derivatives of Trig Functions
Derivatives of Exp. and Log. Functions
Derivatives of Inverse Trig Functions
Derivatives of Hyperbolic Trig Functions**
Chain Rule
Implicit Differentiation
Related Rates
Higher Order Derivatives
Logarithmic Differentiation***

Exam 2 - Tentative Date : October 11, 2018

Applications of Derivatives

Rates of Change**
Critical Points
Minimum and Maximum Values
Finding Absolute Extrema
The Shape of a Graph, Part I
The Shape of a Graph, Part II
The Mean Value Theorem
Optimization
Indeterminate Forms and L'Hospital's Rule
Linear Approximations
Differentials
Newton's Method**
Business Applications***

Exam 3 - Tentative Date : November 6, 2018

Integrals

Indefinite Integrals
Computing Indefinite Integrals
Substitution Rule for Indefinite Integrals
More Substitution Rule
Area Problem
The Definition of the Definite Integral
Computing Definite Integrals
Substitution Rule for Definite Integrals

Applications of Integrals

Average Function Value***
Area Between Curves
Volumes of Revolution Using Rings
Volumes of Revolution Using Cylinders
More Volume Problems**
Work**

Exam 4 - Tentative Date : November 29, 2018

* Several sections of this chapter are briefly covered during the first few days of each semester. The exact sections covered varies from semester to semester.

** These sections are on the syllabus and but are only covered if I have the time.

*** These sections are not on the syllabus and while I'd like to cover them I never have the time.