

10B Syllabus - Calculus

Lecture Schedule based on *Hughes-Hallet, et al* – Calculus, 4th Edition

| Section | Lectures | Topic |
|---------|----------|--|
| 5.1 | 1 | How do we measure distance traveled? |
| 5.2 | 1 | The Definite Integral |
| 5.3 | 1 | Interpretations of the Definite Integral |
| 5.4 | 1.5 | Theorems about Definite Integrals |
| 6.1 | 0.5 | Antiderivatives Graphically and Numerically |
| 6.2 | 1 | Constructing Antiderivatives Analytically |
| 6.3 | 0.5 | Differential Equations |
| 6.4 | 1 | Second Fundamental Theorem of Calculus |
| 6.5 | 0.5 | The Equations of Motion |
| 7.1 | 1 | Integration by Substitution |
| 7.2 | 1 | Integration by Parts |
| 7.3 | 0.5 | Tables of Integrals |
| 7.4 | 1.5 | Algebraic Identities and Trigonometric Substitutions |
| 7.5 | 1.9 | Approximating Definite Integrals |
| 7.7 | 1 | Improper Integrals |
| 7.8 | 1 | Comparison of Improper Integrals |
| 8.1 | 1 | Areas and Volumes |
| 8.2 | 1 | Applications in Geometry |
| 8.6 | 1 | Applications in Economics |
| 11.1 | 1 | What is a Differential Equation? |
| 11.4 | 1 | Separation of Variables |
| 11.5 | 1 | Growth and Decay |
| 11.6 | 1 | Applications and Modeling |
| 11.7 | 1 | Models of Population Growth |

Optional Topics – time permitting.

| Section | Lectures | Topic |
|---------|----------|---|
| 7.6 | 1 | Approximation Errors and Simpson's Rule |
| 8.4 | 1 | Density and Center of Mass |
| 8.5 | 1 | Applications to Physics |
| 11.2 | 1 | Slope Fields |
| 11.3 | 1 | Euler's Method |

Recommended Calculator : TI-85 or TI-86. At the instructors discretion symbolic manipulation calculators such as TI-89 or TI-92 may be prohibited during exams. For some exams, calculators may not be permitted at all.