

**MATHEMATICS 1B  
CALCULUS (4units)**

**Instructor: Prof. M.Ratner.**

**COURSE OUTLINE**

Texts : Stewart, **Single Variable Essential Calculus**, Student Edition, University of California, Berkeley, or Stewart, **Calculus: Early Transcendentals**, Brooks/Cole, 5<sup>th</sup> edition. The Chapters from the second textbook are given below in parenthesis.

**INTEGRATION.**

Technique of Integration : Sections 6.1-6.3 ( Sections 7.1-7.5)

Improper Integrals: Section 6.6 ( Section 7.8).

Approximate Integration: Section 6.5 ( Section 7.7)

Applications of Integration : Section 7.4 and the “ Area of surface of Revolution “ from the additional topics on the website : [stewartcalculus.com](http://stewartcalculus.com) ( Sections 8.1-8.2)

**FIRST-ORDER DIFFERENTIAL EQUATIONS.**

Separable Equations: Section 7.6 ( Section 9.3)

Linear Equations: The additional topic from the website : [stewartcalculus.com](http://stewartcalculus.com) ( Section 9.6)

Applications of differential equations: Section 7.6 ( Sections 9.1, 9.4, 9.5).

**INFINITE SEQUENCES.**

Limit of a sequence. Monotone and bounded sequences: Section 8.1 ( Section 11.1)

**INFINITE SERIES.**

Tests for convergence : Sections 8.2-8.4 ( Sections 11.2-11.7).

Power series: Sections 8.5-8.7 ( Sections 11.8- 11.10).

**SECOND- ORDER DIFFERENTIAL EQUATIONS.**

Second –Order Linear Differential equations : Sections 17.1-17.2 ( Sections 17.1- 17.2)

Applications of Second-Order Differential Equations: Section 17.3 ( Section 17.3)