

## 20C Syllabus - Calculus

Lecture Schedule based on Stewart's – *Calculus, Early Transcendentals* 5th Edition

Note: The following syllabus takes 26 lectures versus 28 to 30 in a typical quarter. Some topics can be expanded or additional topics (eg Kepler's Laws) can be added if time permits.

Section	Lectures	Topic
12.1	1	Three-dimensional coordinate systems
12.2	1	Vectors
12.3	1	The Dot Product, projections and components
12.4	1	The Cross Product
12.5	1	Equations of lines and planes
13.1- 13.4, 10.1, 10.2	4	Parametric equations in the plane; vector related functions in space; derivatives and integrals of vector functions; velocity, speed and acceleration
14.1	1	Functions of several variables
14.2	1	Limits and continuity
14.3	1	Partial Derivatives – omit Cobb-Douglas product function
14.4	1	Tangent planes and linear approximations
14.5	1	The Chain Rule, omit implicit differentiation
14.6	1	Directional derivatives and the gradient vector
14.7	1	Local maxima and minima
14.7	1	Absolute maxima and minima; extreme value theorem
14.8	1	Lagrange multipliers
15.1	1	Double integrals over rectangles
15.2	1	Iterated integrals
15.3	1	Double integrals over general regions
15.4	1	Double integrals in polar coordinates
15.5, 15.6	1	Selected applications of double integrals
15.7	1	Triple integrals
12.7	1	Cylindrical and spherical coordinates
15.8	1	Triple integrals in cylindrical and spherical coordinates

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.