*Approved: September 2016 Effective: Summer 2016*

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| **TOPICS** | **SECTIONS FROM TEXT** | **TIME LINE** |
| Applications of Definite Integrals: areas, volumes, volumes by cylindrical shells, work, average value of a function | 6.1 – 6.5 | 7.5 Hours |
| Techniques of integration: integration by parts, partial fractions, trig integrals, trig substitution, hyperbolic trig substitutions, tables and computer algebra systems, numerical integration, improper integrals. | 7.1 – 7.8 | 13 Hours |
| Further Applications of Integration: Arc length, surface areas of revolution, fluid force, moments and centers of mass. | 8.1 – 8.3 | 5 Hours |
| Differential Equations: Modeling with differential equations, separable differential equations, population growth and other applications. | 9.1, 9.3 | 2.5 Hours |
| Conic Sections and Polar Coordinates: parametric equations, polar coordinates, graphing in polar coordinates, areas and lengths in polar coordinates. | 10.1 – 10.4 | 7 Hours |
| Infinite sequences and series: sequences, infinite series, integral test, comparison tests, ratio and root tests, alternating series, absolute and conditional convergence, power series, Taylor and Maclaurin series, convergence of Taylor series: error estimates, applications of power series. | 11.1 – 11.11 | 17 Hours |

### 4-unit class: hours total 57.5 (15 x 3 hours 50 minutes) – hours for exams + 2.5 hour final

This outline allows for 4 hours of exams.

**NOTES:**

1. It is expected that a student leaving this course will have had experience with a computer algebra system. A

minimum of two computer assignments is needed.

1. A computer algebra system student handout is available at the Math/CS computer lab.
2. At least 25% of the grade should be based on student performance without the aid of a graphing calculator or computer.
3. Practice exams can indicate types of problems but actual problems should be substantially different.

Submitted by: Beydler, Griffith, Guth, Khoddam, Kojima, Nguyen, Pop, Sholars, Tamayo, Tran

Math Department Policy can be found at: <https://www.mtsac.edu/math/departmentpolicy.html>