**MATH 160 OUTLINE**

**PRECALCULUS MATHEMATICS**

**TEXT: PreCalculus: Building Concepts and Connections, 2nd Ed. by Narasimhan**

|  |  |  |
| --- | --- | --- |
| *Approved: 6/7/2019* | *Effective: Summer 2019* | |
| **MATERIAL TO BE COVERED** | **SECTIONS**  **FROM TEXT** | **TIME**  **LINE** |
|
| Definition and graphs of functions, difference quotient, properties of functions, combining functions, transformation of functions, composition of functions. Modeling with functions. | 2.1 – 2.8 | 6.5 Hours |
| Quadratic functions and models. Polynomial function, complex and rational zeros of polynomials, rational functions. | 3.1 – 3.8 | 6.5 Hours |
| One - to - one and inverse functions. Exponential and logarithmic functions; Properties of logarithms, exponential and logarithmic equations and application. | 4.1 -4.6 | 7 Hours |
| The unit circle and angle measure, trigonometric functions of angles and real numbers. Linear velocity, angular velocity. Graphs of trigonometric functions. Properties of trigonometric functions. Inverse trigonometric functions. Applications of right triangles. | 5.1 - 5.6 | 6.5 Hours |
| Trigonometric equations. Trigonometric identities, sum, difference, multiple and half angles. | 6.1 – 6.4 | 6 Hours |
| Vectors, the dot product and applications. Parabolas, ellipses, hyperbolas. | 7.5 – 7.7  9.1 - 9.3 | 6 Hours |
|
| Systems of non - linear equations, partial fractions. | 8.7 – 8.8 | 3.25 Hours |
| Infinite sequences and summation notation, arithmetic and geometric sequences, mathematical induction, the Binomial Theorem. | 10.1 – 10.3  10.6 - 10.7 | 7 Hours |
|
| Optional sections: (At least one of the following topics) Polar coordinates, limits, derivatives, Riemann Sum, Integrals. | 7.3 – 7.4  Supplement | 3 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.

This course is a prerequisite for Math 180 (Calculus) and, consequently, it is important that the students develop sufficient skills and background to increase their chance of success in calculus.

Submitted by: Arellano, Beydler, Birca, Kim, Kojima, Lee, Morales, Perez, Tamayo, Tran, Wohlgezogen.

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