# MATH 17100 Syllabus

## Texts

* *Calculus, Eighth Addition,* James Stewart, Cengage, 2016, ISBN: 9781285740621.
* *Math 171 Basic Linear Algebra,* B. Kitchens, available on the web through the math department undergraduate courses webpage.

## 1. Geometry of ℝ2

* Lines and circles (appendices B and C)
* Conic sections (section 10.5)
* Graphs of functions (section 1.1)
* Parametric equations (section 10.1)
* Polar coordinates (section 10.3)
* Complex numbers (appendix G)

## 2. ℝ3 and vectors

* Cartesian coordinates for ℝ3 (section 12.1)
* Vectors (section 12.2)
* Dot product (section 12.3)
* Cross product (section 12.4)
* Lines and planes (section 12.5)

## 3. Geometry of ℝ3

* Curves in ℝ3 (section 13.1)
* Surfaces of revolution (section 8.2)
* Quadric surfaces (section 12.6)
* Functions of 2 variables, graphs and level curves (section 14.1)
* Cylindrical coordinates (section 15.7)
* Spherical coordinates (section 15.8)
* Parametric equations of surfaces (section 16.6)

## 4. Linear algebra

* Lines in two-dimensional space
* Planes in three-dimensional space
* Matrices and elementary row operations
* Gaussian elimination
* Reduced row-echelon matrices and solution sets
* Matrix arithmetic
* The multiplicative identity and solution sets
* Determinants
* Functions
* Eigenvalues and eigenvectors