

MATH 171 Syllabus

- *Calculus, Eighth Edition*, James Stewart, Cengage Learning, 2016, ISBN: 978-1-285-74062-1.
- *Math 171 Basic Linear Algebra*, B. Kitchens, available on the web through the math depart undergraduate courses webpage.

1. Geometry of \mathbb{R}^2

- lines and circles (appendices B & 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. \mathbb{R}^3 and vectors

- cartesian coordinates for \mathbb{R}^3 (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 \mathbb{R}^3

- curves in \mathbb{R}^3 (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

- (e) Reduced row-echelon matrices and solution sets
- (f) Matrix arithmetic
- (g) The multiplicative identity and solution sets
- (h) Determinants
- (i) Functions
- (j) Eigenvalues and eigenvectors