MATH 171
Syllabus

- *Math 171 Basic Linear Algebra*, B. Kitchens, available on the web through the math depart undergraduate courses webpage.

1. Geometry of $\mathbb{R}^2$
   (a) lines and circles (appendices B & C)
   (b) conic sections (section 10.5)
   (c) graphs of functions (section 1.1)
   (d) parametric equations (section 10.1)
   (e) polar coordinates (section 10.3)
   (f) complex numbers (appendix G)

2. $\mathbb{R}^3$ and vectors
   (a) cartesian coordinates for $\mathbb{R}^3$ (section 12.1)
   (b) vectors (section 12.2)
   (c) dot product (section 12.3)
   (d) cross product (section 12.4)
   (e) lines and planes (section 12.5)

3. Geometry of $\mathbb{R}^3$
   (a) curves in $\mathbb{R}^3$ (section 13.1)
   (b) surfaces of revolution (section 8.2)
   (c) quadric surfaces (section 12.6)
   (d) functions of 2 variables, graphs and level curves (section 14.1)
   (e) cylindrical coordinates (section 15.7)
   (f) spherical coordinates (section 15.8)
   (g) parametric equations of surfaces (section 16.6)

4. Linear algebra
   (a) Lines in two-dimensional space
   (b) Planes in three-dimensional space
   (c) Matrices and elementary row operations
   (d) 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