**Algebra Courses**

**3720: Introduction to Abstract Algebra I**

**4040:** **Matrix Theory**

**5000: Abstract Algebra I**

**5010: Abstract Algebra II**

**6000: Introduction to Algebra I**

**6010: Introduction to Algebra II**

**7000: Homological Algebra**

**Analysis and PDE Courses**

**3750: Classical Analysis**

**3770:** **Fundamental Properties Spaces/Funct I**

**4010: Basic Analysis**

**4200: Complex Variables**

**4210:** **Foundations of Analysis**

**5200: Introduction to Analysis I**

**5210: Introduction to Analysis II**

**6200: Analysis I**

**6210: Analysis II**

**6600: Ordinary Differential Equations I**

**6610: Ordinary Differential Equations II**

**Geometry & Topology Courses**

**4500: Introduction to Differential Geometry I**

**5400: General Topology**

**5410:** **Introduction to Smooth Manifolds**

**6400:** **Introduction to Algebraic Topology**

**6410:** **Introduction to Differential Topology**

**Numerical Math Courses**

**3800: Elementary Numerical Analysis**

**4820: Optimization Techniques**

**5600: Nonlinear Dynamics with Numerical Methods**

**5700:** **Partial Diff Equations with Numerical Methods**

**5800: Numerical Analysis Nonlinear Equation Approximation Theory**

**6850: Theoretical Numerical Analysis I**

**Analysis and PDE Books**

* Walter A. Strauss, *Partial Differential Equations*, 2008, John Wiley & Sons
* Joel Smoller, *Shock Waves and Reaction—Diffusion Equations*, Springer
* G.B. Whitham, *Linear and NonlinearWaves*,Wiley, New York, 1974
* Courant R and Friedrichs K O, 1948,  *Supersonic Flow and Shock Waves* (Berlin: Springer)

**Geometry and Topology Books**

* Rolfsesn. *Knots and links*
* Milnor. *Morse Theory*
* Thurston. *Three-Dimensional Geometry and Topology*

**Math Bio Books**

Graduate books

* Keener and Sneyd. *Mathematical Physiology*
* Murray. *Mathematical Biology*

Undergraduate books

* Hoppensteadt and Peskin. *Mathematics in Medicine and the Life Sciences*
* Edelstein-Keshet. *Mathematical Models in Biology*
* Britton. *Essential Mathematical Biology*
* DeVries et al. *A course in Mathematical Biology*
* Ingalls. *Mathematical Models in Systems Biology*