**Syllabus**
**for**
**Chemistry 5305-001**
**Separation Science**

I. Introduction
II. Distillation
   A. Type
      1. Simple
      2. Fractional
      3. Azeotropic
      4. Five Other Types
   B. Use
   C. Theory
III. Liquid-Liquid Extraction
   A. Use
   B. Theory
   C. Countercurrent Distribution
   D. Countercurrent Chromatography
IV. Chromatography
   A. Gas Chromatography
   B. Liquid Chromatography
   C. Theory
   D. Specific Topics
      1. Preparative Technique and Theory
      2. Supercritical Fluid
      3. Enantiomeric Separations
      4. Micelles and Pseudophases
      5. Ion Exchange
      6. Size Exclusion
      7. Affinity
      8. Planar Methods
      9. Solid Phase Extraction
V. Electrophoresis
   A. Types
   B. Use
   C. Theory
   D. Capillary Methods (CE, CIEF, IT)
   E. Capillary Electrochromatography
VI. Barrier Separation Processes
VII. Bubble Separation Methods
VIII. Crystallization (if time permits)