OFFICIAL SYLLABUS
STAT 480b - INTRODUCTION TO MATHEMATICAL STATISTICS

(Adopted- Fall 2003; Committee: Drs. W-K. Shiue, Z. Agustin, A. Neath)

Catalog Description. Sampling distributions, central limit theorem and limiting distributions, parameter estimation, statistical hypotheses. Prerequisites: Math 250 and Stat480a.

Textbook. Introduction to Probability and Mathematical Statistics, 2nd edition, by Bain and Engelhardt

Course Outline and Topics

- Chapter 7 Limiting Distributions
  - 7.2 Sequences of Random Variables
  - 7.3 The Central Limit Theorem
  - 7.4 Approximations for the Binomial Distribution
  - 7.5 Asymptotic Normal Distributions
- Chapter 8 Statistics and Sampling Distributions
  - 8.2 Statistics
  - 8.3 Sampling Distributions
  - 8.4 The t, F and Beta Distributions
- Chapter 9 Point Estimation
  - 9.1 Introduction
  - 9.2 Some Methods of Estimation
  - 9.3 Criteria for Evaluating Estimators
  - 9.4 Large-sample Properties
- Chapter 10 Sufficiency and Completeness
  - 10.1 Introduction
  - 10.2 Sufficient Statistics
- Chapter 11 Interval Estimation
  - 11.1 Introduction
  - 11.2 Confidence Intervals
  - 11.3 Pivotal Quantity Method
  - 11.5 Two-sample Problems
- Chapter 12 Tests of Hypotheses
  - 12.1 Introduction
  - 12.2 Composite Hypotheses
  - 12.3 Tests for the Normal Distribution
  - 12.4 Binomial Tests
  - 12.6 Most Powerful Tests
  - 12.7 Uniformly Most Powerful Tests
  - 12.8 Generalized Likelihood Ratio Test

Any instructor should cover all of the material specified; additional sections are optional.