I. **Course Title**
   - Introduction to Statistical Methods

II. **Course Prefix/Number**
   - MATH 205

III. **Credit Hours**
   - 3

IV. **Prerequisites**
   - MATH 104 minimum grade: C
   - OR MATH 106 minimum grade: C
   - OR MATH 107 minimum grade: C
   - OR MATH 120 minimum grade: C.

V. **Catalog Description**
   - An introduction to the basic techniques of applied statistics. Typical topics include sampling techniques (simple random, stratified, cluster), independence, discrete and continuous random variables, distributions (normal, t, chi square, F, and sampling), regression, correlation, confidence intervals, hypothesis testing, types of error, power of tests, ANOVA, and nonparametric methods.

VI. **Curricular Relationships**
   - Math 205 satisfies statistics requirements of pre-professional majors, but does not provide credit for mathematics or computer science majors or minors. It also serves as an elective for students seeking an emphasis in mathematics for elementary education licensure. This course enhances content knowledge in the following state model content standards areas of mathematics: 1, 3, 5, and 6.

VII. **Student Learning Outcomes**
   - Students will be able to explain the uses of elementary applied statistics and describe and recognize its potential misuses.
   - Students will be able to design an experiment and collect, organize, and present data.
   - Students will be able to apply the basic techniques of statistical analysis and decision making to various data sets.
   - Students will be able to make productive use of a typical statistical software package.
VIII. Content Outline

- Useful discrete and continuous probability distributions.
- Experimental design and sources of error.
- Correlation and linear and non-linear regression.
- Confidence intervals for the mean and standard deviation.
- Sampling and hypothesis testing.
- Analysis of variance.

IX. Course Procedures/Policies/Grading Scale

- Homework assignments are made daily, a representative sample of assigned problems is graded, and weighted as part of the course grade.
- Three to four examinations are given during the semester.
- One or more class projects require teams of students to collect data and use a statistical software package.
- A comprehensive final examination is given during final week.

X. Required/Recommended Readings

- An introductory statistics text presented from a scientific or applied perspective such as:
  

XI. Issues Unique to this Course

- This course requires significant laboratory time for team projects.

XII. Additional Departmental Issues

- None