MTH 230  Introduction to Statistics  3 credit

I. **Bulletin Description**: Students will study data collection, descriptive statistics, hypothesis testing, probability, regression, sampling distributions, and statistical inference.

II. **Prerequisite**: Grade of “C” or better in MTH 099. (Rationale: The student must possess basic knowledge of variables, equation solving, evaluation of algebraic formulas, and the use of a graphing calculator.)

III. **Rationale for Course Level**: Although it is an introductory course, it involves extensive use of sometimes complicated formulas and the interpretation of data based on rigorous statistical analysis and/or intuition and critical thinking.

IV. **Suggested Textbook**:

V. **Other Requirements and/or Materials for the Course**:
   a. A scientific calculator is required. (A graphing calculator with statistical capabilities, e.g. TI-83 or TI-84, is strongly recommended.)
   b. Access to Microsoft Excel or other statistical software is required.
   c. Students will be required to gather data outside of class.

VI. **Student Learning Objectives**:

**Institutional Outcomes**:
1. Students will demonstrate competency in reading, writing, oral communication, and numerical literacy.
2. Students will evaluate information.

**Course Outcomes**:
1. Develop an approachable research objective specifying the population and characteristic(s) to be studied.
2. Gather data from a random sample of a population using a tool/method he/she designs, taking issues of bias into account.
3. Describe data using appropriate visual displays (including charts, graphs, and distribution shape).
4. Describe data using appropriate numerical summaries (including central tendency, dispersion, position, the Empirical Rule, and regression analysis).
5. Draw valid conclusions about a population by performing statistical inference on a sample.
6. Draw valid conclusions about situations involving randomness using probability concepts.
I. **Suggested Course Outline:**
Basic concepts and gathering data: 1-2 weeks
Organizing & summarizing data: 3 weeks
Exam 1
Inferential statistics: 5 weeks
Exam 2
Linear regression: 2 weeks
Probability: 2 weeks
Final Exam

II. **Suggested Course Evaluation:**
Regular homework assignments, three (3) exams, and a course project in four (4) parts. The project should give students experience selecting a topic, gathering data, organizing and summarizing data, and performing statistical inference. Quizzes may also be included.

Homework and quizzes: 25%
Exams: 35% (10% each in-class exam, 15% final exam)
Project: 40% (10% each part)

III. **Components of Student Evaluation**
Students will be graded as follows:

- Homework (10 @ 10 points each) 100 points
- Exams (2 @ 100 points each) 200 points
- Final Exam 150 points
- Project (2 @ 75 points each) 150 points
- TOTAL 600 points

Grading Scale:
93 – 100%: A 80 – 82%: B- 67 – 69%: D+
90 – 92%: A- 77 – 79%: C+ 63 – 66%: D
87 – 89%: B+ 73 – 76%: C 60 – 62%: D-
83 – 86%: B 70 – 72%: C- 59% & below: F

IV. **Bibliography:**

**Syllabus Prepared By:**
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