

# MATH 130 – ELEMENTS OF STATISTICS 1 – SYLLABUS

Department of Mathematics  
Millersville University

## Description

Derivation of basic formulas; measures of central tendency and variability; probability and normal curve; sampling and hypothesis testing; confidence intervals. No credit toward a math or four-year computer science major, or under block G2 for majors in the School of Science and Mathematics except for nursing majors and allied health technology majors. (3.0 credits)

This course may be taken for general education credit (G2) except for the majors mentioned above.

MATH 234 and MATH 235 are equivalent courses and thus credit will not be given for more than one of MATH 130, 234, and 235.

## Prerequisites

Successful completion of any 100-level MATH course or math placement testing/evaluation before registration.

## Course Objectives

interpret statistical results in research articles, effectively communicate with statisticians, and interpret computer output involving means, standard errors, significance levels, confidence limits and other fundamental measures, use a basic statistical computing package ( , Minitab or StatCrunch) to solve problems in probability and statistics.

## **Assessment**

Assessment of student achievement of the course objectives will vary from one instructor to another. Typical assessment will be made through work in class, homework, and examinations administered in a traditional face-to-face classroom environment, in an online environment, or in a hybrid of face-to-face and online assessments.

## **Use of Technology**

Students will be well served by a scientific calculator such as the Texas Instruments TI-30 or other scientific calculator.

## **Topics**

1. Descriptive Analysis and Presentation of Data
  - a) Role of Statistics in Research
  - b) Observational studies and designed experiments
  - c) Population vs. sample
  - d) Random samples vs. non-random samples
  - e)

calculation of binomial probabilities

- using formula
- using binomial tables

applications