COLBY COMMUNITY COLLEGE

Syllabus

Course #/Title: MA250 Statistics
Department: Mathematics
Required Text: Elementary Statistics, Triola
12th Edition, 2012, Pearson
ISBN: 0321836960
ISBN 13: 9780321836960
Instructor: Miss Wetter
Office Hours: 7:45 a.m. – 4:00 p.m.
Course Placement: Senior in High School
Freshman/Sophomore in College

Year: Spring 2015
Credit Hours: 3 Hours
Days/Time: M - F 4th Hour
Room: WHS 4/IDL
Phone #: 785-673-4223
Fax #: 785-673-4234 (office)
Fax #: 785-673-4225 (IDL Room)
Prerequisite: MA178. See below
Website: www.usd292.org
Email: dwetter@ruraltel.net

Statistics (MA250) Overview / Rationale

Statistics is a branch of applied mathematics concerned with the collection, organizing, analyzing and interpretation of quantitative & numeric data. From calculating the batting average of a baseball player to predicting the winner of an election to determining whether or not a new cancer drug is more effective than an old one, statistics is one of the most commonly used forms of upper level mathematics. Indeed, a working knowledge & understanding of statistics is important in virtually all forms of endeavor: business, industry, government, education, social science, engineering, applied science, behavioral science, medicine, etc.

Course Description

MA250 Elements of Statistics (3 Cr. Hr.). Prerequisite: MA178 (College Algebra) or equivalent. This is an introductory course designed to develop an understanding of probability, frequency distributions, measure of location and variation, probability distributions, confidence intervals, hypothesis testing, tests of significance appropriate to binominal and normal populations, correlations, regression analysis, and analysis of variance.

Purposes

The purpose of 'MA250 Statistics' is to provide students with a general and broad-based knowledge and understanding of statistics. The intent of the course is NOT to emphasize the mathematics and mathematics derivations in statistics, but rather to emphasize the utility and practicality of statistics in all disciplines.

CCC Student Learning Outcomes Addressed in This Course

The CCC Student learning outcomes addressed in the course include: #1 - effective oral and written communication skills, #2 - a higher level of critical and creative thinking processes, #3 - ability to solve problems using a variety of techniques and methods, and #4 - the ability to utilize the technology relevant to the learner's discipline.

Statistics Objectives and Competencies

Objective (Defn): something that one's efforts or actions are intended to attain or accomplish; purpose; goal. In education … course objectives are the bits of information, the topics, the facts, the processes, the procedures and the collective subject matter that the learner will study during a course.
The objectives in Statistics include …
1. to develop skills and work problems involving statistical and data terminology, the design of an experiment, and a recognition of the "use and abuses" of statistics.
2. to develop skills and work problems involving describing, exploring and comparing data (frequency tables, histograms, measures of center, measures of variation, measures of position).
3. to develop skills and work problems involving probability.

4.   to develop skills and work problems involving probability distributions.
5.   to develop skills and work problems involving normal probability distributions.
6.   to develop skills and work problems involving sample sizes and estimates.
7.   to develop skills and work problems involving hypothesis testing.
8.   to develop skills and work problems involving correlation and regression.
9.   to develop skills and work problems involving inferences from two samples.

Competency (Defn): the quality of being competent; the possession of required skills, knowledge, qualifications or capacities. In education … competencies refer to measurable skills, knowledge, qualifications and/or capacities that a student should acquire and possess at the end of a unit of study or at the end of the course.
The competencies in Statistics include …
Upon successful completion of this course the student should be able to:
1.   Recognize basic concepts about the nature of data.
2.   Have fluency and the ability to correctly use the language and vocabulary associated with statistics.
3.   Identify the elements of good experimental design.
4.   Visually display the nature of a distribution (make a frequency table, make a histogram).
5.   Calculate measures of center for a set of data (mean, median, mode).
6.   Calculate measures of variation for a set of data (range, standard deviation).
7.   Find z-scores (standard scores) and percentages for items in a data set.
8.   Find and represent in correct notation probabilities of simple events.
9.   Calculate probability combining two or more simple events [P(A and B), P(A or B)].
10.   Be able to find a factorial, combination value and permutation value (counting values).
11.   Calculate measures of center and variation for a probability distribution.
12.   Calculate measures of center and variation for a binomial distribution.
13.   Apply basic methods for working with normal distribution (be able to work with a standard normal distribution table).
14.   Find z-scores given a probability (normal distribution table).
15.   State and use properties of the Central Limit Theorem.
16.   Construct and interpret a critical value, margin of error, and a confidence interval of/for a population mean.
17.   Construct and interpret a critical value, margin of error, and a confidence interval of/for a population proportion.
18.   Test claims about population means.
19.   Test claims about population proportions.
20.   Calculate the strength of a linear relationship (Pearson Correlation Coefficient).
21.   Construct a regression line.
22.   Test a claimed distribution fits a data set's distribution.

Kansas Core Outcomes

The learning outcomes and competencies detailed in this syllabus meet, or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Project for this course, as sanctioned by the Kansas Board of Regents.

Evaluation / Grading

Assignments: Homework problems for each section.
Tests and/or Quizzes: Chapter Tests and/or quizzes. Final project. Final exam.

Grading: 90% and up   A
                        80% - 90%   B
                        70% - 80%   C
                        60% - 70%   D
                        Below 60%   F

"Withdraw Passing" will be allowed pursuant to Colby Community College policies as set forth by the college. "Withdrawing" requires the completion of paper work (withdraw forms) available from the CCC Office of the Registrar. If you discover that you don't have the prerequisite skills, the time, the interest or the aptitude to complete the course ... then immediately complete the correct paperwork to withdraw.

Instructional Methods

Mathematics is a "participatory activity" ... the more you do, the more you learn & master. In general, new concepts/skills/procedures will be presented, discussed and demonstrated in the classroom with student-teacher interaction being desirable. Problems that reinforce and expand upon presentations will be assigned and these are expected to be completed by the next class period. Problems may be discussed in class with adequate opportunities for "follow-up" and clarification(s).

Assignment Policy

Assignments are expected the next class period after they are assigned. If you have an excused absence you have one day for every day you are gone to hand in the assignment. It is your responsibility to make up work if you are absent. Late assignments will not be accepted. Assignments will not be accepted unless they are complete. Please include full name, date, page number and problem numbers. Do assignments in pencil and on regular notebook paper or on computer as appropriate. Copy the problems as appropriate. Show all of your work even if it seems obvious. Circle the answer at the conclusion of the problem or make sure the final answer is obvious. Keep assignments neat and legible. If an assignment is unreadable, it will not be accepted and should be redone. When faxing or emailing assignments please number your pages (for example 1 of 3, 2 of 3, 3 of 3) and be sure your name is on each page. When faxing assignments, make sure the print is dark enough so it is legible when faxed. If e-mailing assignments, please put "Statistics" in the subject line.

Test Policy

Dates of tests are announced on the schedule of assignments and in class. Unless there are extenuating circumstances for absence or arrangements are made with the instructor, you must be in attendance for the tests; otherwise you will not be allowed to make them up.

Assessment

Colby Community College assesses student learning at several levels: general education, program, and course. The goal of these assessment activities is to improve student learning. As a student in this course, you will participate in various assessment activities. An example of your work, a paper, some test questions, a presentation, or other work may be selected for assessment. This process will not affect your grade, will not require you do additional work and your evaluation will be confidentially handled. Results of these activities will be used to improve teaching and learning at Colby Community College.

Attendance Policy

Attending class is the means by which you learn the content of the course, share ideas and interact with other students, turn in assignments and receive feedback from your instructor. Attendance is very important and cannot be made up. If you will be absent for a school related activity, please contact the instructor. Also in the case of illness, please contact the instructor. All other absences will be considered unexcused and no credit will be given for assignments or tests given on that date.

Withdrawal for Non-Attendance

If you miss class a lot, you will be dropped from this course. According to college policy you will be withdrawn for non-attendance at mid-term if you have missed more than one third of the total class meetings without any attempt to make arrangements with the instructor. This withdrawal could affect your financial aid and/or your athletic eligibility. It may also mean that it could take you longer to achieve your academic goals.

Academic Integrity Policy

Colby Community College defines academic integrity as learning that leads to the development of knowledge and/or skills without any form of cheating or plagiarism. This learning requires respect for Colby's institutional values of quality, service and integrity. All Colby Community College students, faculty, staff, and administrators are responsible for upholding academic integrity.

Cheating is giving, receiving, or using unauthorized help on individual and group academic exercises such as papers, quizzes, tests, and presentations through any delivery system in any learning environment. This includes impersonat-

ing another student, sharing content without authorization, fabricating data, and altering academic documents, including records, with or without the use of personal and college electronic devices.

Plagiarism is representing or turning in someone else's work without proper citation of the source. This includes unacknowledged paraphrase, quotation, or complete use of someone else's work in any form. It also includes citing work that is not used and taking credit for a group project without contributing to it.

The following procedure will be used for students who violate the policy:

First Offense – Student will receive a zero for the assignment and the student will be reported to the Dean of Academic Affairs.

Second Offense – The student will be reported to the Dean of Academic Affairs and removed from the class.

Third Offense – The student will be reported to the Dean of Academic Affairs and dismissed from the college.

Any questions about this policy may be referred to the Dean of Academic Affairs.

Cell Phone Policy

It is your choice to be in this class. When you come to class, the instructor and fellow students demand your attention and respect. Cell phone usage, including text messaging, iPod usage, or usage of any other electronic device is not allowed in class. Headphones, earbuds, or other listening devices are not allowed. Any student who cannot meet these expectations will be asked to leave the classroom and no credit will be given for that day's assignment. Cell phones will not be allowed for calculator usage on tests.

IDL Contract

An IDL contract must be on file in the office or with the instructor. All provisions on the contract will be enforced.

Textbook

Triola, Mario, F. Elementary Statistics, 12th Edition, 2012. Pearson, ISBN:0321836960 or
ISBN 13:9780321836960

Resources

Your classroom textbook should serve as your primary resource for the course. It is also desirable (and strongly recommended) that you have a graphing calculator.   I will provide support for TI-83, TI-84, and TI-89 calculators. For some assignments you will need a computer and StatDisk and/or Excel spreadsheet. Selected notes and PowerPoint presentations are on the Statistics page of the WHS website.

Accommodations for Students With Disabilities

According to the Americans with Disabilities Act, it is the responsibility of each student with a disability to notify the college of his/her disability and to request accommodation. If a member of the class has a documented learning disability or a physical disability and needs special accommodations, he/she should contact Student Support Services, which is located in the Student Union.

Disclaimer

I reserve the right to change any information contained in this document, when necessary, with adequate notice given to the student. Notice shall be given in the classroom during class. No other notice is required. It is the students' responsibility to keep up with any changes, modifications, adjustments or amendments that are made to this document.