olby Community College   Syllabus

Course Number/Title: MA250 Statistics   **Term/Year:** Spring 2018

Credit Hours: 3   **Days/Time**: M – F 10:54 – 11:44

Department: Mathematics

Prerequisite: MA178

Required Text: Elementary Statistics, Triola, 12th Edition, 2012, Pearson
            ISBN: 0321836960 or ISBN 13: 9780321836960

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CCC Mission
Challenge students to adapt to a diverse society. *Create* opportunities for student growth. *Connect* student learning with professional experiences.

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 <u>NOT</u> to emphasize the mathematics and mathematics derivations in statistics, but rather to emphasize the utility and practicality of statistics in all disciplines.

Course Requirements/Timeline
Students must have the textbook listed for this course. Homework assignments will be completed as the course schedule indicates. Chapter Tests will be given at the end of each chapter. A Final Comprehensive Exam will be given at the end of the course. Students will complete a Final Project. Details for this project will be given to the students during the course. See the course calendar of assignments for assignments and due dates.

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 scanning and emailing assignments please number your pages (for example 1 of 3, 2 of 3, 3 of 3) and be sure your name, section number, page number, and assignment 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.

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, or usage of any other electronic device will not allowed in class unless approved by the instructor. Computers will be allowed for statistical software only. Headphones, earbuds, or other listening devices will 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 and with the instructor as applicable. All provisions on the contract will be enforced.

Textbook
Triola, Mario, F. Elementary Statistics, 12th Edition, 2012. Pearson, ISBN:0321836960 or ISBN13:97803960

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 along with StatDisk, StatCrunch, and/or Excel spreadsheet. Selected notes and PowerPoint presentations are on the Statistics page of the WHS website.

Attendance Policy
Colby Community College views class attendance as a mandatory activity. However, if students must be absent, the students should make arrangements in advance with the instructors. Students absent as official college representatives (athletics, activities, or scholarship fulfillment) are not counted absent but **MUST** make advance arrangements with instructors to complete all course work. Punitive grades cannot and will not be assigned if the absence is excused by the college. It is always the student's responsibility to notify instructors of any absence due to illness or any other reason.

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.

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.

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 impersonating 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.

Syllabus 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.

Accommodations for Students With Disabilities

According to the Americans 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 is requesting special accommodations, he/she should contact disability services at disability@colbycc.edu.

Notice of Non-Discrimination
Colby Community College provides equality of opportunity to its applicants for admission, enrolled students, graduates, and employees. The College does not discriminate with respect to hiring, continuation of employment, promotion, tenure, other employment practices, application for admission or career services and placement on the basis of race, color, gender, age, disability, national origin or ancestry, sexual orientation or religion. For inquiries regarding the nondiscrimination policies, contact the Vice President of Students Affairs, Title IX and ADA Coordinator, Colby Community College, 1255 S. Range Ave., Colby, KS 67701 (785) 460-5490).

Accreditation
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