MATH 205 – STATISTICAL METHODS

Syllabus

Greetings and Salutations from the Land of Cool Sunshine!

This course has been designed to be entirely online, including examinations. While it doesn't fit the traditional model of a college course, in that there is no "class session" or instructor lecturing, it does in every way deliver the content to the student who would normally be in the lecture hall. Since I won't be lecturing, and you are on your own to set your pace, we have a few things in the online environment that are designed to help you.

- BPS6e: The official grades for this course will be kept on the Adams State University Blackboard site, and students can access them through the following website:
  https://www.adams.edu/onestop/
  the entire course, including an electronic version of the textbook, are to be accessed through the publisher's website:
  http://courses.bfwpub.com/bps6e.php

After purchasing an activation code from our bookstore, you should:

1. Go to http://courses.bfwpub.com/bps6e.php (Mac users need to use Firefox).
2. Click on the link "REGISTER AN ACTIVATION CODE."
3. You will be prompted to follow the on-screen instructions to register your activation code. You will start by entering your activation code, first and last name, e-mail address and password.
4. Follow the on screen instructions to find your course by selecting the school's state (Colorado), the school name (Adams State College / University), then your course/instructor (Math-Aldrich, Steve) Then click next at the bottom of the screen.
5. Verify all of the information that you entered is correct and select create account.

   Please make sure to contact customer support at BFW publishing if you have any issues with their technology: 1-800-936-6899. There is also a weblink for "click here for more options" at the bottom of the webpage after login. Adams State University office of instructional technology will not be able to assist you with BFW's software

- Chapter Contents: Once you've entered your registration information into the BPS6e website, and entered the course area, there is a menu on the left-hand side of the page. Click on "View all assignments." Once you've entered this area, click on the multipart lesson for the appropriate chapter. You may ignore the due dates in this area. I have put them there simply to order the material in book order. It is recommended, but not required, that you follow book order. For each multipart lesson you will find the chapter from the book to read, an optional chapter pretest to make sure you know the material, a fun "LearningCurve" module that will be part of your course grade, the chapter homework assignment

that will be part of your course grade, an optional chapter posttest, and links to videos, tutoring, vocabulary flashcards, and slideshows if you want more information or help understanding the chapter material.

- Exams will be taken online at the same website mentioned above.

Proctored Exams

Go to http://www.onlineproctoring.com/adamsstateuniversity/index.htm and make an account (this costs nothing to make an account). Upon account creation, you will receive an email from Kryterion Online Proctoring with a link for future contact. When you are ready to take an exam, go to http://www.onlineproctoring.com/ , click "Login", type in your username and password, click "New Exam", under "Term" choose "Open Enrollment", under "Name of Exam" choose the exam you wish to schedule, choose an appropriate Exam Date and Start time. Be aware that Kryterion requires 48-hours notice.

Proctoring will cost $19 per exam ($38 total). Kryterion will not give refunds, even if the exam is overpaid for. Please use a Paypal account for payment of the exam and do not pay more than once for each exam. If you register for an incorrect time or course or make a mistake on the student registration form, simply email Kryterion support for a resolution. You will also need a webcam for this exam. Finally you can check your computer for the proper technical requirements at https://onlineproctoring.com/.

Instructor

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Course Delivery

Online, Open Enrollment

MATH 205 – STATISTICAL METHODS

Credit Hours

Three Semester Hours

Prerequisites

Math 104 minimum grade C- or T
or Math 106 minimum grade C- or T
or Math 107 minimum grade C- or T
or Math 120 minimum grade C- or T

Course Time Limits

The minimum course completion time for a three credit hour open-enrollment online correspondence course is six weeks from the date of enrollment.

All correspondence courses have a maximum course completion deadline of one year from the date of registration.

Course Materials

Textbooks can be purchased from the Adams State University Bookstore. To order textbooks or obtain information about book titles, you may go to www.exstudies.adams.edu and click on the "Undergraduate" or "Educators K-12" icon. Click on the "Bookstore" link.   Select "DISTLEARN" from the department menu. (http://adams.edu/students/sub/bookstore/)

Use **Section Number: 1469** to order books from Bookstore site. This should provide the correct textbook information and ordering options.

If you have questions, you can contact the Bookstore at 719-587-7981, email Loretta Martinez at lcmartin@adams.edu or send a mailed request to Adams State University Bookstore, 208 Edgemont Blvd., Suite 3140, Alamosa, CO 81101

Required Textbook

The Basic Practice of Statistics, 6th edition, by Moore, Notz, and Fligner.
ISBN 1464102546.

Note: You do not have to purchase a hard copy of this book since you have an electronic version through the website. You are, of course, welcome to use the hard-copy.

MATH 205 – STATISTICAL METHODS

Catalog Description

Basic techniques of applied statistics, including data organization and presentation, experiment design, calculating statistical measures, choosing, applying, and interpreting statistical tests, correlation and regression, and software utilization.

Course Content

- Exploring Data: Variables, Distributions, and Visualizing Data with scatterplots, histograms, two-way tables. The normal distribution is studied, along with correlation, and linear regression.
- Introduction to Inference: Sampling techniques and data production through experimentation. Introductory probability and sampling distributions. Confidence intervals and tests of significance are covered in this area.
- Inference about Variables: We distinguish between a quantitative response variable, learning about population means and two-sample problems, and a categorical response variable, learning about population proportions and comparing them.
- Inference about Relationships: We learn about the chi-square test, inference for regression, and one-way analysis of variance.
- Optional: Interested students are free to learn about nonparametric tests and multiple regression. This will not be a part of the course grade.

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.

Course Requirements

Students must complete all online homework assignments. It is not expected that homework scores reach 100%, and the total percentage of all homework scores will comprise 20% of the course grade.

There are four online exams (including two proctored) that are worth 20% of the course grade each. The exams must be taken in order, and the student is responsible for procuring and employing the proctor(s).

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Course Outline

In this course we will cover the following chapters. Each chapter is covered in its entirety:

Chapter 1: Picturing Distributions with Graphs
Chapter 2: Describing Distributions with Numbers
Chapter 3: The Normal Distributions
Chapter 4: Scatterplots and Correlation
Chapter 5: Regression
Chapter 6: Two-Way Tables
Chapter 8: Producing Data: Sampling
Chapter 9: Producing Data: Experiments
Chapter 10: Introducing Probability
Chapter 11: Sampling Distributions
Chapter 14: Confidence Intervals: The Basics
Chapter 15: Tests of Significance: The Basics
Chapter 16: Inference in Practice
Chapter 18: Inference about a Population Mean
Chapter 19: Two-Sample Problems
Chapter 20: Inference about a Population Proportion
Chapter 21: Comparing Two Proportions
Chapter 23: Two Categorical Variables: The Chi-Square Test
Chapter 24: Inference for Regression
Chapter 25: One-Way Analysis of Variance: Comparing Several Means

Optional: Chapter 7 is a Part I Review, Chapter 12 is on General Rules of Probability, Chapter 13 is on Binomial Distributions, Chapter 17 is a Part II Review, Chapter 22 is a Part III Review, Chapter 26 is on Nonparametric Tests, Chapter 27 is on Statistical Process Control, Chapter 28 is on Multiple Regression, and Chapter 29 continues the work on Analysis of Variance. None of this optional material is part of the course grade.

Multipart Lessons

There is a multipart lesson assigned for each chapter covered by this course. To access, login to your Blackboard account, access this course, and click on the publisher's icon (you will need to log in to the bps6e website once, but after initial login you will not need to do this anymore). Click on the "Assignments" button at the bps6e website, then pick the multipart lesson for the appropriate chapter.

Each multipart lesson has the following contents (in the following order):

- A link to the associated chapter of the ebook. Read this chapter carefully.
- A link to a chapter pretest. While not a part of the course grade, taking this quiz will let you know if you are ready to do the homework. If you don't do well on the

quiz, go back and reread the chapter. You can retake this quiz multiple times, at any time.

- A link to the chapter LearningCurve. This is a formative activity in which you "score points" by correctly answering questions. Each correct answer gains you points. The software is adaptive, and you will get harder questions if you answer the easy ones correctly. If your answer is incorrect, the LearningCurve will give you a hint. If you answer incorrectly again, the LearningCurve provides a link to the page in the textbook where that specific material is covered. There are no point deductions for wrong answers. Answering more difficult questions correctly gives higher point values than the easy ones. Once you reach the threshold score for the chapter, you get all 10 points assigned. (This is an all-or-none assignment, but as I said, you never lose LearningCurve points for incorrect answers.)

- A link to the chapter homework. These exercises come directly from the textbook, although some data sets and questions are generated algorithmically (are not the same for each student). In fact, these assignments are generated separately for each student, so your questions will not likely be the same as someone else's.

- A link to the chapter posttest. While not a part of the course grade, taking this quiz will let you know if you have mastered the chapter material. If you don't do well on the quiz, go back and carefully reread the chapter. This quiz can be taken multiple times, at any time, and can be used as review before taking an exam.

- A link to video lectures associated with the ebook. Review whenever you want, as many times as you want.

- A link to stattutor. Go here if you are not performing well on the pretest and want more help with the material.

- A link to vocabulary flashcards. Go here to quiz yourself on the conceptual part of the chapter.

- A link to slideshow presentations. Go here if you are not performing well on the pretest and want more help with the material, or to review the material in a different form before taking a test.

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Grade Distribution and Scale

In alignment with Adams State University academic policies, no D may apply to a major or minor field.

Grade Distribution

Online Homework: 20% (2% LearningCurve, 18% homework)
Online Exam #1 covering Chapters 1,2,3,4,5,6: 20%
Proctored Exam #2 covering Chapters 8,9,10,11,14,15,16,17: 20%
Online Exam #3 covering Chapters 18,19,20,21,22: 20%
Proctored Exam #4 comprehensive Final Exam: 20%
Total: 100%

Grade Scale

90-100% A
80-89% B
70-79% C
60-69% D
59% and below F

ADA Statement

Students who need special accommodation to complete this class should contact the instructor and the Adams State University Counseling Center at 719-587-7746.

Academic Integrity

Cheating, plagiarism, unauthorized possession or disposition of academic materials, or the falsification or fabrication of one's academic work will NOT be tolerated. Any offense may result in a zero for the exam or exercise in question and may result in failure of the course. Please refer to the ASU Student Handbook for more information:
http://www.adams.edu/pubs