# CASPER COLLEGE COURSE SYLLABUS
## STAT2050-02
## Fundamentals of Statistics

**Semester/Year:** Fall 2015

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| **Lecture Hours:** 5 | **Lab Hours:** 0 | **Credit Hours:** 5 |
| **Class Time:** 10:00 – 10:50 | **Days:** MTuWThF | **Room:** PS111 |

**Instructor's Name:** Ashley Widman-Johnson

**Office:** PS 329 **Office Phone:** 307-268-2560

**Email:** ashleywidman@caspercollege.edu

**Office Hours:** Monday 9:00 – 9:50 and 12:30 – 12:50
Tuesday and Wednesday 12:30 – 12:50 and 2:00 – 2:50
Thursday 9:00 – 9:50 and 12:30 – 12:50
Friday 12:30 – 12:50
**Other times by appointment

**Course Description:** Fundamentals of Statistics is primarily for the students of the life sciences, behavioral sciences, and physical sciences. Topics include frequency distributions and graphics, central tendency, dispersion, useful probability models, and basic statistical inference including linear regression and correlation.

**Statement of Prerequisite**: A grade of "C" or better in MATH 1000 or MATH 1400, or an ACT Math score of 23 or better, or an appropriate COMPASS Exam score within the past year.

**Goal:** The goal of this course is to gain a working knowledge of the vocabulary, uses, and misuses of basic classical descriptive and inferential statistics. Using the TI graphing calculator, students will be able to identify the necessary calculator steps, correctly input data/statistics, and reach conclusions. Students will be able to explain their methodology and effectively communicate the meaning of their conclusions.

**Casper College General Education Outcome(s)**:
- Use the scientific method
- Use quantitative analytical skills to evaluate and process numerical data

**Casper College may collect samples of student work demonstrating achievement of the above outcomes. Any personally identifying information will be removed from student work.**

**Course Objectives:**

The students will be able to:
- Obtain and interpret summary statistics and graphics
- Verify the assumptions of Normality and equality of variance (EOV)
- Compute probabilities from a sample space and population distribution
- Set up interval estimates for population parameters
- Run hypothesis tests for 1 and 2 variable situations and interpret the results
- Perform the appropriate Post Hoc test(s) when necessary
- Perform a 1 variable Linear Regression, including a test on significance
- Perform a one way analysis of variance (ANOVA), including the overall F test
- Set up and run simple Goodness-of-Fit hypothesis tests

**Methodology**: You are responsible for everything taught in class whether you are present or not. You should study with the intent to understand and not to "just get by" on the tests. You will be encouraged to participate in class. If you have any questions about what has just been presented PLEASE ask right then and there as it is likely that others may have a similar question. We will be using the calculator every day in class—ALWAYS bring your calculator.

**Required Course Materials:**

    **Calculator:** A Texas Instruments 83 or 84 graphing calculator is REQUIRED. We will be using the calculators every day in class. A phone, tablet, or laptop even with a graphing calculator application is not an acceptable substitution for a calculator. The Math Learning Center offers a renting option. Contact them for more details.

**Recommended Text:** Any edition of *Elemental Statistics* by Mario F. Triola

**Grading:**

    **15% In Class Quizzes**: An in-class quiz will be every Friday unless there is a test that week. It will include the material from the previous Friday and Monday through Thursday of that week. The lowest quiz will be dropped at the end of the semester.

    **10% Moodle Homework**: There will be a Moodle Homework assigned after each topic. Topics completed on Monday through Friday are due at 11:59 p.m. on the following Monday. It is recommended that you complete the homework assignments that will be on the Friday quiz before the Monday due date to practice the quiz material. The lowest 2 assignments will be dropped.

**40% Tests**: There will be an in-class exam after each of the first four units.  Test will be announced at least a week in advance.  You may use a single sheet of paper with hand written notes on each test.  On the Unit 4 Exam, you may also use the "Hypothesis Test Reference Tables." If for some reason you need to miss a test, you MUST contact me by the day of the exam. A makeup will not be considered if asked after the test day.

**20% Final Exam**:  There will be a cumulative final exam during the final exam period.   You may use a single sheet of handwritten notes on the exam as well as the "Hypothesis Test Reference Tables".

**15% Project:** You will be required to do a project where you collect data to answer a question of interest to you.  The data analysis will need to include some of the descriptive and inferential statistical techniques that we will learn this semester.  The project will be presented as a poster at the end of the semester.  The project description and the grading rubric will be on Moodle.

**Late Assignments**: No assignment will be accepted late unless you are personally given permission from me BEFORE the assignment is due. Missing class is never a legitimate reason for attempting to turn in an assignment late.

**Attendance**: While attendance is not specifically part of the grade calculation, it is absolutely necessary for success in this course. Examples given in class are often very similar to those given on quizzes and tests so it is in your best interest to have excellent attendance.

**Cell Phone Policy**: Cell phones are never to be seen or heard in class. They may not be used as a calculator. It is both rude and distracting to have your phone out in class and will not be tolerated. A phone set on vibrate can be just as disruptive as it is on ring so please turn your phone off before the start of class.

**Grading Scale**: The traditional percentage grading scale of 90% A - 80% B - 70% C - 60% D will be used. However, I reserve the right to lower the grade cutoffs.

**Class Policies:** The last date to change to audit status or to withdraw with a W Grade is November 12th.

**Student Rights and Responsibilities:** Please refer to the Casper College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Casper College Student.

**Chain of Command:** If you have any problems with this class, you should first contact the instructor to attempt to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take the matter through the appropriate chain of command starting with the Department Head/Program Director, the Dean, and lastly the Vice President for Academic Affairs.

**Academic Dishonesty:** (Cheating & Plagiarism) Casper College demands intellectual honesty.  Proven plagiarism or any form of dishonesty associated with the academic process can result in the offender failing the course in which the offense was committed or expulsion from school. See the Casper College Student Code of Conduct for more information on this topic.

**Official Means of Communication:**  Casper College faculty and staff will employ the student's assigned Casper College email account as a primary method of communication.  Students are responsible to check their account regularly. This is also, where you will find course evaluation links during course evaluation periods.

**ADA Accommodations Policy:**  If you need academic accommodations because of a disability, please inform me as soon as possible. See me privately after class, or during my office hours. To request academic accommodations, students must first consult with the college's Disability Services Counselor located in the Gateway Building, Room 344, (307) 268-2557, [bheuer@caspercollege.edu](mailto:bheuer@caspercollege.edu).  The Disability Services Counselor is responsible for reviewing documentation provided by students requesting accommodations, determining eligibility for accommodations, and helping students request and use appropriate accommodations.

**Course Schedule:**
   **Unit 1** – 3 weeks; Types of data and studies, sampling methods, visual representations of data, measures of center, measures of variation, measures of relative standing, descriptive statistics, normality test
   **Unit 2** – 2.5 weeks; Probability, the binomial distribution
   **Unit 3** – 3 weeks; The normal distribution, percentiles, the central limit theorem, confidence intervals, sample size determination
   **Unit 4** – 4.5 weeks; Hypothesis testing
   **Unit 5** – 2 weeks; Goodness of fit, the test for independence, correlation and regression, scatterplots, the analysis of variance (ANOVA)