



## Course Syllabus – Statistical Methods

MATH 1342.350 – Spring 2017

**Department:** Mathematics and Engineering

**Instructor:** Denise Johansen

**Discipline:** Mathematics

**Office:** PC 101G; (806)716-4632

**Course Number:** Math 1314

**Cell/Text:** (513)227-0095

**Course Title:** Statistical Methods

**Email:** djohansen@southplainscollege.edu

**Credit:** 3 **Lecture:** 3 **Lab:** 0

**Time/Place:** MWF 8am-8:45am/FHS ??

**Office Hours:** MW 10am-11am and 2:45pm-4pm, TR 4:15pm-5:30pm and 7:15pm-7:45pm, or by appointment

**This course satisfies a core curriculum requirement:** Yes – mathematics

**Prerequisites:** 2 years of high school algebra or Math 0320, TSI compliance

**Available Formats:** conventional

**Campuses:** Levelland Campus, Reese Campus, Plainview

**Textbook (Optional):** **Elementary Statistics Using the TI83-84 Plus Calculator**, Triola. Pearson. ISBN-13: 9780321952936.

**Supplies:** TI-84 Calculator, MyMathLab access (Course ID: **johansen91011**).

**Course Description:** This course is a study of the methods of analyzing data, statistical concepts and models, estimation, tests of significance, introduction to analysis of variance, linear regression, and correlation.

**Course Purpose/Rationale/Goal:** To provide a transferable course in the elements of statistical methods.

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**Course Requirements:** To maximize the potential to complete this course, a student should attend all class and laboratory meetings, take notes and participate in class, complete all homework assignments and examinations including final examinations.

### Course Evaluation:

- There will be in-class assignments collected daily. By their very nature, in-class assignments can NOT be made up. The in-class average is worth 10% of your grade, and the lowest 2 in-class grades will be dropped.
- Daily online homework assignments will be due weekly, before class on Tuesdays. Late homework will be accepted with 10% per day late submission penalty! The homework average is worth 10% of your grade, and the lowest 3 homework grades will be dropped.
- Daily pre-class assignments will be posted, worth 5% of your grade. The lowest 2 PreClass grades will be dropped.
- There will be 6 online Quizzes to be **completed on your own and without references**. The Quiz Average is worth 10% of your grade, and the lowest quiz grade will be dropped.
- There will be 3 in-class hour exams. These will each be worth 15% of your grade.
- There will be a 2-part in-class cumulative final exam on **Monday, May 8<sup>th</sup> and Wednesday, May 10<sup>th</sup> from 8am-8:45am**, worth 20% of your grade.

### Letter Grades:

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

### Student Learning Outcomes/Competencies:

Upon completion of this course and receiving a passing grade, the student will be able to:

1. represent raw data using frequency distributions
2. represent raw data using polygons, ogives, histograms, and pie charts
3. calculate measures of central tendency, variation, and position for both grouped and ungrouped data and interpret in writing the significance and meaning of the calculations
4. calculate coefficients of variation and skewness and interpret in writing the significance of the calculations
5. calculate classical and empirical probabilities
6. apply binomial, Poisson, and normal distribution properties to calculate probabilities and interpret in writing the significance of the calculations
7. calculate mean, variance, and standard deviations of probability distributions and interpret in writing the significance of test results
8. evaluate a hypothesis testing situation to determine the appropriate test to be used
9. use parametric and non-parametric tests for hypothesis testing and interpret in writing the significance of test results

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10. calculate simple and multiple linear regression equations and use equations to make predictions
11. calculate coefficients of correlation, determination, and non-determination and interpret in writing the significance of the calculations
12. use a computer statistics program and/or a statistical calculator to help with computations

### Core Objectives:

#### Communication Skills:

effective development, interpretation, and expression of ideas through written, oral, and visual communication.

- Develop, interpret, and express ideas through written communication
- Develop, interpret, and express ideas through oral communication
- Develop, interpret, and express ideas through visual communication

#### Critical Thinking:

creative thinking, innovation, inquiry, analysis, evaluation, and synthesis of information.

- Generate and communicate ideas by combining, changing, and reapplying existing information
- Gather and assess information relevant to a question
- Analyze, evaluate, and synthesize information

#### Empirical and Quantitative Competency Skills:

the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

- Manipulate and analyze numerical data and arrive at an informed conclusion
- Manipulate and analyze observable facts and arrive at an informed conclusion

**Attendance Policy:** Students are expected to attend all classes in order to be successful in a course. The student may be administratively withdrawn from the course when absences become excessive as defined in the course syllabus. *[Absences for this course are considered excessive if you have 4 in a row or a total of 8. If you reach 4 consecutive absences or a total of 8 absences, you will be administratively withdrawn from the class with a grade of 'X' or 'F'.]*

When an unavoidable reason for class absence arises, such as illness, an official trip authorized by the college or an official activity, the instructor may permit the student to make up work missed. It is the student's responsibility to complete work missed within a reasonable period of time as determined by the instructor. Students are officially enrolled in all courses for which they pay tuition and fees at the time of registration. Should a student, for any reason, delay in reporting to a class after official enrollment, absences will be attributed to the student from the first class meeting.

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Students who enroll in a course but have “Never Attended” by the official census date, as reported by the faculty member, will be administratively dropped by the Office of Admissions and Records. A student who does not meet the attendance requirements of a class as stated in the course syllabus and does not officially withdraw from that course by the official census date of the semester, may be administratively withdrawn from that course and receive a grade of “X” or “F” as determined by the instructor. Instructors are responsible for clearly stating their administrative drop policy in the course syllabus, and it is the student’s responsibility to be aware of that policy.

It is the student’s responsibility to verify administrative drops for excessive absences through MySPC using his or her student online account. If it is determined that a student is awarded financial aid for a class or classes in which the student never attended or participated, the financial aid award will be adjusted in accordance with the classes in which the student did attend/participate and the student will owe any balance resulting from the adjustment.

**Last day to drop is Thursday, April 27<sup>th</sup>.**

### **SPC School Holidays:**

Monday, 1/16, Martin Luther King Holiday  
Monday-Friday, 3/13-3/17, Spring Break  
Monday, 4/17, Easter Holiday

### **FHS School Holidays:**

Monday, 1/16, Martin Luther King Holiday  
Monday, 2/20, Presidents’ Day/Staff Development  
Monday-Friday, 3/13-3/17, Spring Break  
Friday, 4/14, Easter Holiday  
Monday, 4/17, Bad Weather Day

**Academic Integrity:** It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his or her own any work which he or she has not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension.

**Cheating:** Dishonesty of any kind on examinations or on written assignments, illegal possession of examinations, the use of unauthorized notes during an examination, obtaining information during an examination from the textbook or from the examination paper of another student, assisting others to cheat, alteration of grade records, illegal entry or unauthorized presence in an office are examples of cheating. Complete honesty is required of the student in the presentation of any and all phases of course work. This applies to quizzes of whatever length, as well as to final examinations, to daily reports and to term papers.

**Dress Code:** Reasonable standards of decency apply to the college community. The student should dress in a manner which does not distract from the academic atmosphere. Revealing attire or clothing carrying obscene or offensive slogans is not permitted. In all academic buildings,

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classrooms, offices, the Student Center, and dining facilities, students are required to wear shirts and shoes.

**Language:** Please be respectful of others and use language that is appropriate to the workplace.

**Campus Carry:** The Texas Campus Concealed Carry law went into effect on university campuses on August 1<sup>st</sup>, 2016. The law does NOT go into effect for community colleges until August 1<sup>st</sup>, 2017. Therefore, NO firearms of any kind are allowed on South Plains College property, regardless of your Concealed Carry status.

**Equal Opportunity:** South Plains College strives to accommodate the individual needs of all students in order to enhance their opportunities for success in the context of a comprehensive community college setting. It is the policy of South Plains College to offer all educational and employment opportunities without regard to race, color, national origin, religion, gender, disability, or age.

**Disability Statement:** Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Special Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Special Services Coordinator. For more information, call or visit the Special Services Office in the Student Services Building, 716-2529 or 716-2530.

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### COURSE OUTLINE / CALENDAR\*

Problems are assigned online for each section of the textbook that we cover. To access online assignments, you must have an access code (you can buy a code for MyMathLab bundled with your textbook or you can buy just the code at [www.mymathlab.com](http://www.mymathlab.com)) and register for our course (Course ID: **johansen91011**) at [www.mymathlab.com](http://www.mymathlab.com). Assignments have due dates, and you will lose 10% per day for work completed after the due date passes. To master the material and prepare for the exams, you **MUST** work extra problems!

\* Assignments and deadlines are subject to change at instructor's discretion, and all changes will be announced in class and posted in MyMathLab.

Date	Content	Required Readings
Week 1 1/17 1/19	<b>Equations and Inequalities (Part 1)</b> <ul style="list-style-type: none"> <li>• Syllabus Overview and Initial Assessment</li> <li>• Linear Equations and Rational Equations</li> </ul>	<b><u>Readings</u></b> Chapter 1: 1.2
Week 2 1/24 1/26	<b>Equations and Inequalities (Part 2)</b> <ul style="list-style-type: none"> <li>• Models and Applications</li> <li>• Complex Numbers</li> <li>• Quadratic Equations</li> </ul>	<b><u>Readings</u></b> Chapter 1: 1.3-1.5
Week 3  1/31  2/2	<b>Equations and Inequalities (Part 3) &amp; Functions and Graphs (Part 1)</b> <ul style="list-style-type: none"> <li>• Other Types of Equations</li> <li>• Linear Inequalities and Absolute Value Inequalities</li> <li>• Basics of Functions and Their Graphs</li> </ul>	<b><u>Readings</u></b> Chapter 1: 1.6-1.7 Chapter 2: 2.1
Week 4 2/7  2/9	<b>Functions and Graphs (Part 2)</b> <ul style="list-style-type: none"> <li>• Linear Functions and Slope</li> <li>• More on Slope</li> <li>• Transformations of Functions</li> </ul>	<b><u>Readings</u></b> <b>Quiz 1 Due</b> (Chapter 1) Chapter 2: 2.3-2.5

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Week 5 2/14 2/16	<b>Functions and Graphs (Part 3)</b> <ul style="list-style-type: none"> <li>• Combinations of Functions; Composite Functions</li> <li>• Review for Exam I</li> </ul>	<b>Readings</b> Chapter 2: 2.6
Week 6  2/21 2/23	<b>Exam I &amp; Polynomial and Rational Functions (Part 1)</b> <ul style="list-style-type: none"> <li>• <b>Exam I</b> (Chapters 1 &amp; 2)</li> <li>• Quadratic Functions</li> <li>• Polynomial Functions and Their Graphs</li> </ul>	<b>Readings</b> <b>Quiz 2 Due</b> (Chapter 2) Chapter 3: 3.1-3.2
Week 7 2/28  3/2	<b>Polynomial and Rational Functions (Part 2)</b> <ul style="list-style-type: none"> <li>• Dividing Polynomials; Remainder and Factor Theorems</li> <li>• Zeros of Polynomial Functions</li> </ul>	<b>Readings</b> Chapter 3: 3.3-3.4
Week 8 3/7 3/9	<b>Polynomial and Rational Functions (Part 3)</b> <ul style="list-style-type: none"> <li>• Rational Functions and Their Graphs</li> <li>• Polynomial and Rational Inequalities</li> </ul>	<b>Readings</b> Chapter 3: 3.5-3.6
3/13-17	<b>Spring Break – No Classes!</b>	
Week 9 3/21  3/23	<b>Exponential and Logarithmic Functions (Part 1)</b> <ul style="list-style-type: none"> <li>• Exponential Functions</li> <li>• Logarithmic Functions</li> <li>• Properties of Logarithms</li> </ul>	<b>Readings</b> <b>Quiz 3 Due</b> (Chapter 3) Chapter 4: 4.1-4.3
Week 10  3/23  3/30	<b>Exponential and Logarithmic Functions (Part 2) &amp; Review for Exam II</b> <ul style="list-style-type: none"> <li>• Exponential and Logarithmic Equations</li> <li>• Exponential Growth and Decay; Modeling Data</li> <li>• Review for Exam II</li> </ul>	<b>Readings</b> Chapter 4: 4.4-4.5
Week 11  4/4 4/6	<b>Exam II &amp; Systems of Equations and Inequalities (Part I)</b> <ul style="list-style-type: none"> <li>• <b>Exam II</b> (Chapters 3 &amp; 4)</li> <li>• Systems of Linear Equations in Two Variables</li> <li>• Systems of Linear Equations in Three Variables</li> </ul>	<b>Readings</b> <b>Quiz 4 Due</b> (Chapter 4) Chapter 5: 5.1-5.2

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Week 12 4/11 4/13	<b>Systems of Equations and Inequalities (Part II)</b> <ul style="list-style-type: none"> <li>• Systems of Nonlinear Equations in Two Variables</li> <li>• Systems of Inequalities</li> </ul>	<u>Readings</u> Chapter 5: 5.4-5.5
Week 13 4/18  4/20	<b>Matrices and Determinants</b> <ul style="list-style-type: none"> <li>• Matrix Solutions to Linear Systems</li> <li>• Inconsistent and Dependent Systems and Their Applications</li> <li>• Determinants and Cramer's Rule</li> </ul>	<u>Readings</u> <b>Quiz 5 Due</b> (Chapter 5) Chapter 6: 6.1-6.2, 6.5
Week 14 4/25 4/27	<b>Review for Exam III &amp; Exam III</b> <ul style="list-style-type: none"> <li>• Review for Exam III</li> <li>• <b>Exam III</b> (Chapters 5 &amp; 6)</li> </ul>	<u>Readings</u> <b>Quiz 6 Due</b> (Chapter 6)
Week 15 5/2 5/4	<b>The Binomial Theorem &amp; Review for Final Exam</b> <ul style="list-style-type: none"> <li>• The Binomial Theorem</li> <li>• Review for Final Exam</li> </ul>	<u>Readings</u> Chapter 8: 8.5
Week 16 5/9	<b>Final Exam</b> <ul style="list-style-type: none"> <li>• <b>Final Exam, 5:30-7:30pm</b></li> </ul>	

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