Reedley College AgNR Department

Timothy E. Smith Ph.D. Plant Science 9

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 **Plant Science 9 – Biometrics**

**Course Description**

An introduction to data description, presentation, experimental design, statistical procedures and experimental methods with emphasis on biological systems. Upon completion of this course, the student will be capable in experimental design, data presentation and statistical procedures.

**Units and Hours**

3 units; 2 hours Lecture - M 6:00 p.m. to 7:50 p.m.

 1 hours Online - Arrangement

**Textbook**

Hampton, R.E. and Havel, J.E. **Introductory Biological Statistics**. 2014. 4th Ed. Waveland Press Inc. Long Grove, USA.

**Assignments and Grading**

Three major tests will be given that correlate to the assigned readings and course lecture notes. Quizzes will be given weekly on the discussed subject matter.

 Point Distribution

1. Online Assignments/Quizzes 400

2. Examinations: 2 Mid Term - Final 600

 Total 1000

90% = A 80% = B 70% = C 60% = D Less = F

**Important Dates:** Last Day to Drop Class with Refund: August 21, 2020

 Last Day to Drop w/o Transcript Record: August 30, 2020

 Last Day to Change CR/NR: September 11, 2020

 Last Day to Drop w/o Letter Grade Assigned: October 19, 2020

 Final Exam: December 7, 2020

**Assignments**: All assignments are due at the beginning of class on the date due. Late submission of assignments will be assessed a penalty of 50%. No exceptions are made.

**Academic Dishonesty**: Plagiarism and cheating are serious offenses and may be punished by failure on exam, paper or project; failure in course; and or expulsion from the University. For more information refer to the "Academic Dishonesty" policy in the College Catalog.

**Need for Assistance:** “If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or section 504 of the Rehabilitation Act, please contact me as soon as possible.”

**Attendance**

Attendance of lectures and labs is required and roll will be taken at each meeting. A "tardy" is considered an absence unless the student contacts and explains the incident. Students must make prior arrangements with the instructor to be excused from lectures and labs, make-up of missed tests and labs are permitted only with excused absences.

**Office Hours - Ag 4**

Monday 11:00 Wednesday 11:00 Friday 9:00 – Email

 **Lecture Schedule**

Week Lecture Topics Reading Assignments

1 Introductions / Administration Chapter 1

2 Intro to Research by Experimentation

3 Descriptive Statistics Chapter 2

4 Data Distribution Chapter 3

5 Data Distribution Chapter 3

6 Exam 1

7 Populations, Samples & Reliability Chapter 4

8 Inferential Statistics/Hypothesis Tests Chapter 5

9 Single Sample Tests and 2-Sample Tests Chapter 6

10 ANOVA – One Way Chapter 7

11 ANOVA – Two Way Chapter 8

12 Exam 2

13 ANOVA – Latin Square Chapter 9

14 Correlation Analysis Chapter 11

15 Linear Regression Chapter 12

16 Multiple Regression Chapter 13

17 Analysis of Frequency Data Chapter 14

18 Final Exam

**Course Outcomes**

1. Perform statistical calculations to summarize data for easy understanding.
2. Determine probability, probability distributions, sampling and sampling distributions.
3. Make meaningful inferences from statistical operations

**Course Objectives**

1. Identify possible common misuses of statistics, such as bias, faulty generalizations & deductions, noncomparable data, and errors.
2. Summarize data into frequency distributions, determine averages, medians, modes, ranges, and measures of dispersion.
3. Develop understanding for probability to relate sample properties to a population.
4. Review normal distribution and its importance to statistical analysis.
5. Comprehend probability based sampling procedures and convenience sampling.
6. Develop and understand statistical hypotheses and Type I & II errors.
7. Perform analysis of variance calculations and interpret the results.