

**MAT 300**  
**Applied Probability and Statistical Methods**  
**9:25 – 10:40 Tuesday, Thursday**  
**Ewing 329**

**Course Designation**

MAT 300. APPLIED PROBABILITY AND STATISTICAL METHODS. Organization and analysis of data, counting techniques, elementary probability, probability distributions (normal, standard normal, student t, chi-square), random sampling, hypothesis testing, regression and correlation analysis; introduction to computer assisted data analysis. May not be applied toward a B.S. major or minor in mathematics. Prerequisite: MAT 103 or 104. 3 hours credit.

**Text**

Beginning Statistics 2nd Edition Textbook and Hawkes Software Bundle. ISBN 978-1-932628-68-5.

**General Course Objectives**

Upon completing this course, the student will be able to:

1. Design investigations, collect data, and use a variety of ways to display data and interpret data representations that may include bivariate data, conditional probability and geometric probability.
2. Use appropriate methods such as random sampling or random assignment of treatments to estimate population characteristics, test conjectured relationships among variables, and analyze data.
3. Use appropriate statistical methods and technological tools to describe shape and analyze spread and center.
4. Use statistical inference to draw conclusions from data.
5. Identify misuses of statistics and invalid conclusions from probability.
6. Compute probability values and use these in constructing and analyzing probability distributions.
7. Draw conclusions involving uncertainty by using hands-on and computer-based simulation for estimating probabilities and gathering data to make inferences and conclusions.
8. Determine and interpret confidence intervals.
9. Formulate and test statistical hypotheses.
10. Use computer programs to solve problems presented throughout the semester.
11. Communicate effectively using the terminology of the course.
12. Demonstrate knowledge of the historical development of statistics and probability including contributions from diverse cultures.

**Subject Matter or Content to be Studied**

1. Statistics
2. Descriptive statistics
3. Probability
4. Probability distributions
5. Normal probability distributions
6. Estimates and Sample Sizes
7. Testing Hypotheses
8. Inferences from two Samples
9. Correlation and Regression
10. Multinomial Experiments and Contingency Tables
11. Analysis of Variance

**Student Activities and Requirements**

1. Class attendance, as determined by the regulations of the university and the department.
2. Homework exercises to be completed by the student and graded at the discretion of the instructor.

3. Participation in class discussion.
4. Participation in cooperative learning activities.
5. Scheduled tests will be given periodically throughout the semester. Students will be given adequate notice.
6. A comprehensive final exam will be given as scheduled at the end of the semester. It will count approximately 25% of the grade for the class.
7. Regular and punctual attendance is necessary for successful completion of this course.
8. There will be at least one question on each test that requires you to provide a written explanation of a concept. Evaluation of the answer to this question will include mathematical content, spelling, grammar, and sentence construction.

### **Presentation Methods**

Lecture with demonstration to include the use of graphing calculators and computer software as well as cooperative learning (75%); class discussion (25%).

### **Evaluation and Grading**

4 tests

Daily grade (based on homework and quizzes)

Final exam grade

Exam Date: Thursday, December 10, 2015, at 8:00 a.m.

### **Grading Scale**

Grades will be assigned according to the following scale:

A (90 or above) B (80 - 89) C (70 - 79) D (60 - 69) F (below 60)

### **Make-up Tests, Class Attendance, and Tardiness**

A student absent from class and missing a scheduled test is entitled to a make-up test if evidence is presented to the instructor that the absence was due to personal illness or death in the immediate family. Absences authorized by the Vice-President of Academic Affairs for official purposes (athletics, performing groups, student government, etc.) also entitle a student to make-up test privileges. Any absence from scheduled work must be covered by an excuse from the Vice-President for Academic Affairs, the Student Health Service, or a doctor before the student is allowed to make up that work. Any exception to this rule must be arranged before the missed work! Each student is directly responsible to the individual faculty member for making up work missed due to excused absences. ALL make-up work must be completed within one week after returning to class. In order to receive credit in this course, a student must attend a minimum of 75% of the class meetings. Students in this class will be allowed no more than 11 absences, excused and unexcused. If a student exceeds the allowable number of absences, a grade of "F" will be assigned in the course. In order to be counted present, a student must arrive on time for the class and remain in class the entire time. When a student is tardy for a class, it is the student's responsibility to talk to the faculty member about changing the recorded absence to a tardy. This must be done on the day that the tardy occurred. Failure to do so will result in a recorded absence. Tardies in excess of three during the semester count as unexcused absences.

### **Classroom Policies**

1. **Turn off cell phones and pagers upon entering the classroom. Do not check messages or send text messages during class. If you are seen using a cell phone during a test, I will assume that you are using it to cheat.**
2. Come to class on time.
3. Be prepared to start class at the scheduled time. Have all necessary items ready.
4. Do not ask to leave class early. Schedule any appointments at times that do not conflict with classroom time.
5. Calculator use is permitted and encouraged on all homework assignments and tests. Cell phones are not allowed to be used as calculators.
6. Be sure to show all work on homework assignments and tests. No partial credit can be given if no work is shown.

7. Homework may be collected and graded at the discretion of the instructor. Homework must be turned in at the time when it is requested. No late homework will be accepted.
8. Cheating and plagiarism are not tolerated. If it is established that a violation has occurred, the penalty will be a zero on the test, examination, or paper in question.
9. It is the responsibility of the individual student to inform the faculty member of any clinically diagnosed learning disability or other limiting disability that might in some way hinder the student's progress in this class. Reasonable accommodations are available upon request.

### **Important Dates**

Students who remain in the course more than one week after the first test and who then elect to drop the course will receive a grade of **W** if passing or a grade of **F** if failing the course at the time of the drop. A drop is not effective and complete until the drop slip has been signed by all parties designated and turned in to the Registrar's office. No course may be dropped after **December 4, 2015**. If you plan to audit this class, you must notify the instructor by **August 28, 2015**. You will not be allowed to change your status from credit to audit after this date. The final examination for this course is scheduled for **Thursday, December 10, 2015, at 8:00 a.m.** That is when it must be taken.

**If a student has a disability that qualifies under the Americans with Disabilities Act and requires accommodation, he should contact Dr. Richard Houston (846-4690) for information on appropriate policies and procedures.**

**Instructor:** Dr. Lee I. Virden

**Instructor's Office:** Broom 255

**Office Phone:** 846-4511

**Instructor's e-mail address:** [lvirden@deltastate.edu](mailto:lvirden@deltastate.edu)

### **Instructor's Office Hours:**

| Monday      | Tuesday     | Wednesday                  | Thursday    | Friday |
|-------------|-------------|----------------------------|-------------|--------|
| 1:30 – 4:00 | 1:30 – 4:00 | 2:00 – 5:00<br>Nursing 140 | 1:30 – 4:00 |        |

**Other office hours are available by appointment.**