COURSE SYLLABUS STAT 145: INTRODUCTION TO PROBABILITY AND STATISTICS
Section 503 (T/Th 12:00-1:15), CRN 33670
SPRING 2017

I.   GENERAL INFORMATION
      Instructor: Cheryl Black, MS   **Office: Academic Center Cubicle 12**
      Phone Number: (5 0 5) 2 6 4 - 0 7 6 6   o r   8 9 5 - 8 6 0 0 (l e a v e   m s g)
      E-Mail: cblack02@unm.edu Office Hours: T/Th 10:45-11:45 or by appointment

II.   COURSE DESCRIPTION: Techniques for the visual presentation of numerical data, descriptive statistics, introduction to probability and basic probability models used in statistics, introduction to sampling and statistical inference, illustrated by examples from a variety of fields. Meets New Mexico Lower-Division General Education Common Core Curriculum Area II: Mathematics (NMCCN 1113). **Prerequisite**: ACT=>22 or SAT =>510 or COMPASS Algebra >54 or COMPASS College Algebra >33 or (MATH 101 and MATH 102) or (MATH 118 and MATH 119) or MATH 120 or MATH 121 or MATH 123 or MATH 150 or MATH 162 or MATH 163 or MATH 180 or MATH 181 or MATH 264.

III. COURSE STUDENT LEARNING OUTCOMES:
      1. Descriptive Statistics, Data Production and Inference**:** Students will learn basic vocabulary, logic, and procedures for data exploration, data production, and statistical inference. (Addresses UNM/ HED Area II: Mathematics Other College-Level Competency 1)
      2. Data Exploration: Students will understand principles of data exploration and differentiate between quantitative and categorical variables. Students will illustrate by way of graphs and the use of tables how to interpret data. They will identify the underlying principles and measures used to analyze this data.
         (Addresses UNM /HED Area II: Mathematics Other College-Level Competencies 1 & 2)
      3. Procedures for data production: Students will demonstrate that they can use tables of random numbers to perform simple random sampling to obtain samples from populations. They will show that they can distinguish differences between observational studies and experiments. Students will demonstrate techniques for the design of a controlled experiment.
         (Addresses UNM /HED Area II: Mathematics Other College-Level Competencies 2 & 3)
      4. Probability theory: Students will be able to use the basic rules for probability to solve problems, working with simple models, both discrete and continuous. Students will demonstrate an understanding of probabilities related to random variables.
         (Addresses UNM /HED Area II: Mathematics Other College-Level Competencies 1, 2, 3)
      5. Sampling Distributions: Students will be able to recognize and apply the terms population, sample, parameter and statistics as they pertain to sampling distributions. They will apply the concept of the Law of Large Numbers and Central Limit Theorem. They will demonstrate the ability to obtain the sampling distribution of sample means and spread of a population.
         (Addresses UNM /HED Area II: Mathematics Other College-Level Competencies 1, 2, 3)
      6. Making Inferences: Students will demonstrate an understanding for the procedures involved in making inferences about quantitative populations.
         (Addresses UNM /HED Area II: Mathematics Other College-Level Competencies 1, 2, 3)
      7. Tests for Independence of two categorical variables: Students will be able to interpret 2-way tables, stating hypothesis, calculating expected counts and using Chi Square distribution to test for independence.
         (Addresses UNM /HED Area II: Mathematics Other College-Level Competencies 1, 2, 3)

IV.   COURSE REQUIREMENTS:
- A.   <u>Instructional Methods</u>: Group work, demonstrated problem solving, projects, discussion, review, lecture and scheduled testing may be employed.
- B.   <u>Evaluation of Students</u>: Evaluation may be based on homework quizzes, projects, group work, exams, and a final exam. Missed quizzes and projects cannot be made up; although one quiz/project grade will be dropped before final grades are computed.
- **C.   <u>Attendance</u>: Students enrolled for credit or audit are expected to attend all class sessions. Students with excessive absences (4) may be dropped from the class**

V.   <u>TEXTS/MATERIALS</u>:Text: Gould/Ryan, *Introductory Statistics: Exploring the World Through Data 2nd Edition,* StatLab course code: **black92493**. Pearson website access code (student purchase, with text or via the site.

VI.   <u>EXPECTATIONS</u>: Students are expected to conduct themselves in a professional and collegial manner. Please refrain from using cell phones during class unless approved in advance by instructor.

VII.   <u>DISABILITY STATEMENT</u>**:** If you have a documented disability, please provide me with a copy of your letter from Equal Access Services as soon as possible to ensure that accommodations are provided in a timely manner.

VIII.   <u>UNM's POLICY ON DISHONESTY IN ACADEMIC MATTERS</u>**:** Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, including dismissal, against any student who is found responsible for academic dishonesty. Any student who has been judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course. Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests or assignments, claiming credit for work not done or done by others; hindering the academic work of other students; and misrepresenting academic or professional qualifications within or outside the University.

IX.   In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants (TA), and Graduate Assistants (GA) are considered responsible employees. This designation requires that any report made to a faculty member, TA, or GA regarding sexual misconduct or gender discrimination must be reported to the Office of Equal Opportunity and the Title IX Coordinator. For more information on the campus policy regarding sexual misconduct, see: https://policy.unm.edu/university-policies/2000/2740.html

X.   <u>IMPORTANT DATES</u>:
Last date to drop without a grade (with refund): Friday, February 3, 2017
Spring Break: Monday thru Friday, March 13-17, 2017
Last date to drop without approval of Director of Student Affairs: Friday, April 14, 2017
Last day to drop with approval of the dean (or to change grading options): May 5, 2017
Final Exam: Thursday, May 11, 2017, room C-108, 12:00-2:00pm

XI.   <u>STUDENT SUPPORT:</u> The Valencia Campus Library provides a quiet atmosphere for study and is an excellent resource for supplementary materials. The Learning Center offers tutorial and individualized instruction at no cost to the student. The STEM Center also offers tutoring and has computers and calculators available for use.

XII.   <u>COURSE GRADING PROCEDURES</u>:

Grading Scale:

		The student's grade will be based on the following:	
A	91 - 100%		
B	81 - 90%	Homework Quizzes and Group Projects	20%
C	71 - 80%	StatLab Projects and/or Excel Projects	20%
D	61 - 70%	Exams	20%
F	0 - 60%	Attendance & Participation	10%
		Final Exam	30%

<u>STAT 145 – Course Outline – Spring 2017</u>

WEEK	TOPIC	CHAPTER
1 1/16-1/20	Class overview Introduction to Data	1
2 1/23-1/27	Graphs Group Project	2
3 1/30-2/3	Numerical Summaries of Center and Variation Group Project: Mean, Median, Mode Exploration	3
4 2/6-2/10	Finish Chapter 3 Group Project: Light Bulb Problem Regression Analysis: Association between Variables	3 & 4
5 2/13-2/17	Correlation and Regression Group Project: Salary and Education	4
6 2/20-2/24	Modeling Variation with Probability	5
7 2/27-3/3	Modeling Variation with Probability Group Project: Rock, Paper and Scissors	5
8 3/6-3/10	Finish Ch. 5 **Exam - Midterm**	5
9 3/13-3/17	*Spring Break*	
10 3/20-3/24	Modeling Random Events: The Normal & Binomial Models Group Project: Coin Flip	6
11 3/27-3/31	Finish Ch. 6 Survey Sampling & Inference	6 & 7
12 4/3-4/7	Central Limit Theorem Group Project:	7
13 4/10-4/14	Confidence Intervals Group Project: Confidence Intervals	8
14 4/17-4/21	Hypothesis Testing for Population Proportions Group Project: Hypothesis Testing	8
15 4/24-4/28	Finish Ch. 8 & Inferring Population Means Group Project: Hypothesis Testing	8 & 9
16 5/1-5/5	Inferring Population Means Group Project: Hypothesis Testing **Research Projects Due on 5/4**	9
17 5/8-5/12	FINAL EXAMS **Thursday, May11, 12:00 - 2:00 pm, C-108**	