Course Description: This course is a four credit course designed to introduce the student to the basic principles, techniques and the logic of data analysis. It also will familiarize the student with statistical reasoning. This course focuses on core statistical concepts and techniques that are used in many fields.

Course Objective: This course focuses on knowledge and skill development in the statistical area. The course is designed to meet the following learning objectives:

Knowledge
- Understand mathematical models, graphs, tables and schematics and how to interpret and draw inferences from them.
- Recognize and interpret mathematical information when presented symbolically, visually, numerically or verbally.
- Understanding of alternatives that can be used in mathematical or statistical analysis and how to achieve optimal results.
- Recognize the limits of mathematical and statistical models and be able to explain how those limits affect everyday decision making.
- Understanding of how mathematical and statistical information can assist in analysis, syntheses and evaluation of complex urban problems.

Skills
- Use of arithmetic, algebraic, geometric, and statistical models to solve problems.
- Understanding how to calculate formulae.
- Use of technology to solve mathematical and statistical problems as well as to prepare graphs and charts.
- Development of the means used to estimate and check answers to mathematical problems.
- Representation of mathematical information in a symbolic, visual, or verbal manner that has clarity of result.

Course Requirements: Students are expected to attend all class periods, submit homework assignments when due, complete all learning enhancers, the midterm and final. The student will also analyze a research project. Student success is enhanced by keeping up to date with required readings. Class attendance is also critical to the student being successful. In order to encourage the student to look through the material before class the attendance will be taken throughout the semester by means of a brief quiz on the reading material. Students are also strongly encouraged to print out copies of the instructor’s PowerPoint presentations. These are accessible in .pdf format (3 up with lines for taking notes). The student can access them from home or school via the internet by Blackboard.
The Blackboard section will be titled “NAL 504 Fundamentals of Applied Reason - Fall 2009 - Sect: 51” Copies of the syllabus and the “project will also be accessible there. A discussion board will also be there for you to ask questions between classes.

**Grading Policy:** Grades are based on the results of homework, learning enhancers, group assignments, project, data project, midterm, final and class participation. Homework questions are noted on the syllabus with due dates. *The instructor will not accept homework after final submission dates which are noted in the syllabus.* The four learning enhancers will be given as noted in the syllabus. There will also be two tests given (a midterm and the final). The grade will consist of the following;

- Attendance 10%
- Group Assignments 10%
- Homework 10%
- Project 10%
- Data Project 10%
- 4 learning enhancers 20%
- Midterm 10%
- Final 20%

Exam attendance is required. Makeup exams will be given only with prior approval of the instructor.

**Grading scale:**

- 95- 100 A
- 94-90 A-
- 89-87 B+
- 86-83 B
- 82-80 B-
- 79-75 C+
- 74-70 C
- 60- 69 D

**Note:** The instructor reserves the right to adjust and modify the syllabus as needed throughout the semester. Attendance guarantees that the student will be apprised of all changes.

**Text:** De Veaux, Richard D., Velleman, Paul F., Bock, David E. 2008 *Stats: Data and Models* New York, NY: Pearson Addison-Wesley

**Class Schedule and Readings**

**Descriptive Statistics**

**Week 1:** August 26 Course introduction, Data, Displaying and Describing Categorical Data

*Read:* Chapter 1 through 4

*Homework:* Chapter 2 - Page 15 - 18 Do 2, 8, 18

August 28 Last day to add by 8:00 pm

**Week 2:** September 2 Finish chapter 3, Displaying and Summarizing Quantitative Data

*Read:* Chapter 5

*Homework:* Chapter 3 - Pages 37 to 45 Do 2, 4, 8, 14, 22

September 4 Last Day to drop by 8:00 pm
Week 3: September 9: Finish Chapter 4, Class Project 1, Understanding and Comparing Distributions, LE #1 Review
Read: Chapter 6
Homework: Chapter 4 - Page 71 to 78 Do 4, 12, 18, 22, 40  Chapter 5 - Pages 99 – 110  Do 4, 6, 12, 22, 24

Week 4: September 16 Standard Deviation as a Ruler and Normal Model , Group Project 2, Learning Enhancer One – covers Chapter 1 through 4,
Read: Chapter 7 and 8
LAST DAY TO SUBMIT HOMEWORK FOR CHAPTERS 2 TO 4
Homework: Chapter 6 - Pages 134 - 139 Do 4, 6, 18, 30, 34

Modeling
Week 5: September 23 Scatterplots, Association and Correlation Linear Regression
Read: Chapter 9
Homework: Chapter 7- Pages 174 – 181 DO 2, 6, 12, 18  Chapter 8 - Pages 204 - 21264 Do 2, 4, 6, 9, 14, 21

Week 6: September 30  Regression Wisdom, Group Project 3, Learning Enhancer #2 Review
LAST DAY TO SUBMIT HOMEWORK FOR CHAPTERS 5 TO 6
Read: Chapter 14 and 15
Homework: Chapter 9 Page 231 - 237 Do 6,18

Beginning of Probability
Week 7: October 7  From Randomness to Probability, Probability Rules!, Learning Enhancer #2 (Covers Chapters 5 to 9)
Read: Chapter 17
Homework: Chapter 14 - Page 361 – 365 Do 4, 6, 14  Chapter 15 - Page 385 - 389 Do 2, 6, 20

Week 8: October 14  Probability Models, Class Project 4, Midterm Review,
Homework: Chapter 17 – Page 423 – 427 Do 6, 10

Week 9: October 21 Midterm, (covers Chapters 1 -9)
LAST DAY TO SUBMIT HOMEWORK FOR CHAPTERS 7 to 9
Read: Chapter 18 and 19
From Data to Inferential Statistics

Week 10: October 28 Sampling Distribution Models, Confidence Intervals for Proportions, LE # 3 Review
Read: Chapter 20 to 21
October 30: Last day to Withdraw by 8:00 pm
Homework: Chapter 18 - Page 456 - 459 Do 2, 4, 8, 16, Chapter 19 - Page 476 - 480 Do 2, 4, 8, 10, 12, 16

Week 11: November 4 Learning Enhancer #3 (Covers Chapter 14 – 17) Testing Hypothesis About Proportions, More About Tests
Read: Chapter 23
Homework: Chapter 20 - Page 498 - 501 Do 2, 4, 6, 12, 20 Chapter 21 - Page 522 – 525 Do 2, 4, 8, 12

LAST DAY TO SUBMIT HOMEWORK FOR CHAPTERS 14 THROUGH 18

Week 12: November 11 No Class Veteran’s Day Holiday

Week 13: November 18 Inferences About Means, Class Project 5, Review for Learning enhancer 4
Read: Chapter 26
Homework: Chapter 23 - Page 574 - 579 Do 2, 6, 10, 18

Week 14: November 25 Comparing Counts, Learning Enhancer 4
Homework: Chapter 26 - as assigned

Week 15: December 2 Final Thoughts, Final Review
LAST DAY TO SUBMIT HOMEWORK FOR CHAPTERS 19 on

December 9: Final Examination

University Policies
Students should refer to the Undergraduate Bulletin for procedures regarding add/drop and withdrawals.

Physically challenged/Special Needs
Educational access is the provision of classroom accommodations, auxiliary aids and services to ensure equal educational opportunities for all students regardless of their disability. Any student who feels he or she may need an accommodation based on the impact of a disability should contact the Office of Disability Services at (216)687-2015. The Office is located in MC 147. Accommodations need to be requested in advance and will not be granted retroactively. Further information regarding the office can be accessed on the web at http://www.csuohio.edu/offices/disability/

Writing Assistance All submitted work is to be written according to academic standards with appropriate citations. The student should contact the instructor before submitting work if unsure about how to paraphrase material or how to cite correctly. The Writing
Center at Cleveland State is available to assist the student with writing issues. Information on the writing center is found at http://www.csuohio.edu/writingcenter/index.html.

Questions regarding the university calendar (holidays and finals week schedule) can be resolved by using the following link to the registrar’s office.

http://www.csuohio.edu/enrollmentservices/registrar/calendar/