



The mission of Concord University is to provide quality, liberal arts based education, to foster scholarly and creative activities and to serve the regional community (<http://www.concord.edu/academics/>).

Course Prefix, Number and Title: MATH 105, Elementary Statistics

Course CRN # and Section: 20195, 02

Semester Taught (including year): Spring, 2019

Professor: Dr. W.R. Winfrey

Credit Hours: 3

Office Location: S-100C

Prerequisites: MATH 103, College Algebra

Office Hours: 8:00-9:30, 2:00-3:00 TH

Course Time (if applicable): 12:30 – 1:45 TH

Email: wrwinfrey@concord.edu

Building and Room Number (if applicable): Science-101

Phone: 304-384-5217

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College/Department Website:
<http://math.concord.edu>

Course Description/Rationale: Topics covered include descriptive statistics, counting, probability, discrete and continuous probability distributions, the binomial distribution, the normal distribution, Central Limit theorem, confidence intervals, hypothesis testing (1 and 2 population) of means, proportions and variances, linear regression, chi-square goodness of fit tests and one-way ANOVA.

Course Management System (Blackboard/Moodle or other systems): None

Hardware/Software Needed (include privacy policies, if applicable): Simple add, subtract, multiply, divide, square root calculator

Text requirements: Elementary Statistics - Brief Version by Allan G. Bluman, 4th edition (reprint)

Concord University Educational Goal(s) Skills 1-7; Knowledge 4, 7; Attitudes 7.

National Standards (if applicable) Addresses, at least in part, the following national standards: NCTM 1a. A.4..1- 5, A.6.2, B.4.1-5, 2a, 2b, 2c. 2d, 2e

Specific Learning Outcomes An algebraic, graphic, and numeric approach to the study of:

- Descriptive statistics, including frequency distributions
 - Grouped and ungrouped frequency distributions; histograms, frequency polygons, ogives,
 - Stem and leaf plots
 - Measures of central tendency, including mean, median, and mode

- Measures of variation, including range, variance, and standard deviation
- Chebyshev's Theorem and the empirical rule
- Standard scores
- Probability and counting rules
 - Tree diagrams, multiplication rule, permutations and combinations
 - Classical probability, including complements, independent and dependent events
 - Probability of two or more events, using “and” or “or”, conditional probability
- Discrete probability distributions
 - Properties of probability distributions, including mean, variance, and standard distribution
 - Binomial distribution
- The Normal distributions
 - Standard normal distribution and z-tables
 - Central limit theorem
- Confidence intervals and sample size
 - Large and small sample confidence intervals for mean (z test and t test)
 - Sample size and maximal error of estimate
 - Confidence intervals for proportions (z test)
 - Confidence intervals for variance/standard deviation (chi-square test)
- Hypothesis Testing
 - Null and alternative hypotheses, level of significance, critical values, test statistic, rejection regions; including both one-tailed and two-tailed tests and both critical value (traditional) and p-value methods
 - One population tests, including: large and small sample mean, proportion, and variance/standard deviation
 - Two population tests, including: large and small sample mean, proportion, variance/standard deviation
- Correlations and Regression
 - Scatterplots, correlation coefficient, t-test for significance of relationship
 - Linear regression model, finding the regression equation and coefficient of determination
- Chi-square and Analysis of Variance
 - Goodness of fit and contingency tables
 - One way ANOVA

Course Requirements

I will give a quiz almost every week that will cover the material since the last quiz. I hope to give four midterm tests and a comprehensive final examination. On the tests, you may use the book's formula sheet, with no marks on it, or you may make your own subject to the following conditions: Midterm Tests: One sheet of paper, 8.5 by 11 inches, hand written, one side. No worked examples. Final Examination: Two sheets of paper, 8.5 by 11 inches, hand written, both sides. No worked examples. I will collect the formula sheets with the tests and examine them. Any violation of the rules on formula sheets will be viewed as an attempt at academic dishonesty and will be treated accordingly.

Grading Policy and Scale, Make-up Policy, Late Work

No make-ups will be given for missed quizzes. No make-up tests will be given for the midterms. If you have a valid reason for missing a midterm test, your grade on the final examination will be substituted for that of the missed test. The quizzes constitute 10% of the grade. The midterms constitute 55% of the

grade. The final examination constitutes 35% of the course grade. Anyone who makes an A on the final examination will get an A for the course. The grade scale is A = 90 to 100, B = 80 to 89, C = 70 to 79, D = 60 to 69, F = below 60.

Course Timeline (Schedule of Assignments/Assessments/Presentations)

The tentative schedule for the tests is: first test at the end of Chapter 3 + Section 4-5, second test after section 6-4, third test at the end of Chapter 8, and fourth test near the end of the semester.

Accessibility/Accommodations:

Concord University is committed to responding to the needs of students with disabilities as defined by the Americans with Disabilities Act. Please inform your instructor at the beginning of the class semester if you have a disability and are requesting accommodations. It is your responsibility to self-disclose that you are requesting accommodations. The University and instructor will provide you with a reasonable accommodation. You should register with CU's Disability Services Office, located in the Athens campus Jerry and Jean Beasley Student Center, Bottom Floor, across from the Campus Post Office. The Disability Services Office phone is 304-384-6086 or you can email the Director, Nancy Ellison, at nellison@concord.edu for assistance.

Academic Dishonesty

Academic dishonesty is morally unacceptable as well as destructive to the learning and teaching atmosphere. Academic dishonesty includes the giving or receiving of improper help on examinations or assignments, falsifying documents, and plagiarism (the act of stealing and using, as one's own, the ideas or the expression of the ideas of another). Such dishonesty can lead to a variety of penalties — including but not limited to failure of assignment, failure of course, loss of institutional privileges, or dismissal from the University. (See University Catalog Academic Policies and Procedures.)

Concord University Honor Code

A Concord University Honor Code was approved by students, staff, faculty, administration, and the CU Board of Governors. The Code states:

"As a member of the Concord University Community I will act with honesty and integrity in accordance with our fundamental principles and I will respect myself and others while challenging them to do the same."

The Honor Code is intended to unite the Concord community behind a culture of honesty, integrity, and civility.

Class/Online Attendance Policy

Regular class attendance is part of a student's academic obligation at Concord. Irregular attendance may affect academic performance adversely and is detrimental to the atmosphere of a class. (See University Catalog Academic Policies and Procedures.)

Emergency Alert System

In an effort to increase safety and security on our campus, Concord University encourages everyone to register for instant text message alerts. Alerts will only be used for security and safety notices. All students, faculty, and staff are eligible to receive text message alerts on their cell phones or email alerts. Please contact the IT Help Desk for further assistance (304-384-5291).

Emergency Information

Emergency/courtesy telephones are located at the main entrance of each residence hall and at various other locations on campus. Emergency telephones can be identified by the flashing blue light and will provide the user with a direct link to Public Safety at the press of a button. To report an on-campus emergency, call 304-384-5357 or 911. The Office of Public Safety is located on the bottom floor of the Rahall Technology Center. For further emergency information go to:

<http://www.concord.edu/administration/office-public-safety>.

Inclement Weather Policy

As a general policy, the University will remain in normal operations during adverse weather conditions. In the event of severe weather conditions, the following may occur:

University Closure

No students or employees are to report.

Classes Cancelled

Students do NOT report BUT employees are expected to report to work at their normal time.

Operating on an Inclement Weather Delay

Under this schedule, all 8 a.m. classes will start at 10 a.m. Students and faculty will follow the Inclement Weather Schedule. (See <http://www.concord.edu/emergency-alerts> for Athens/Beckley Inclement Weather Schedules.)

**Announcements invoking the late schedule or other options referenced above are aired on area radio and television stations and are sent as text and email messages to those enrolled for this service.*

Student Conduct

In classrooms, online, laboratories, and during any activities that are part of course requirements, students are expected to observe reasonable rules of conduct.

Sexual Harassment & Assault

Federal law, Title IX, and Concord University policy prohibits discrimination, harassment, and violence based on sex and gender (Including sexual harassment, sexual assault, domestic/dating violence, stalking, sexual exploitation, and retaliation). If you or someone you know has been harassed or assaulted, you can receive confidential counseling support through the Concord University Counseling Center (304-384-5290). Alleged Violations can be reported non-confidentially to the Concord University Title IX Coordinator at 304-384-6327 or titleix@concord.edu. Reports to Campus Security can be made at (304-384-5357). As an employee at Concord University, I am a mandatory reporter which means I must report any sexual misconduct I am made aware of. This includes verbal or written (such as in an assignment) disclosures of sexual harassment or sexual assault.

Technology Services

Contact the CU Help Desk at extension 5291 from campus or 304-384-5291 off campus. You may also e-mail cuhelpdesk@concord.edu.

Syllabus Disclaimer

"This syllabus is subject to change based on the needs of the class. Please check it regularly."