



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 303, Mathematical Probability and Statistics I

Course CRN # and Section: 20199 sec 01

Semester Taught: Spring 2019

Credit Hours: 3

Prerequisites: Math 105 and Math 255

Course Time: 8:00 – 9:15 TR

Building and Room Number: S104

Professor: Dr. Dan Krider

Office Location: S 100-G

Office Hours: 9:30 – 11:00 MTWRF

Email: kriderd@concord.edu

Phone: 384-5329

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College/Department Website:
concord.math.edu

Course Description/Rationale: Math 303 is a required course in the mathematics program and can be used to meet a requirement for a minor in mathematics. Topics covered include descriptive statistics, counting, probability, discrete and continuous probability distributions, transformations of random variables and the central limit theorem.

Course Management System: None

Hardware/Software Needed: None

Text requirements: *Mathematical Statistics with Applications* 6th edition by Mendenhall, Wackerly and Scheaffer. ISBN 0-534-37741-6

Concord University Educational Goals: Skills 1-4, Knowledge 4

National Standards: Addresses, at least in part, the following national standards:
NCTM 1a., 2a-f, 4e, A.4.1-5, A5.3-5, A.6.2

Specific Learning Outcomes

Gain an understanding and application of the following topics:

- Introduction to probability
 - o Solving basic probability problems

- o Probability involving counting (permutations and combinations)
- o Conditional probability and independence
- o Bayes theorem
- Discrete Random Variables
 - o Discrete random variables., mean/expectation, variance
 - o Binomial, Geometric, Hypergeometric and Poisson distributions
 - o Moments and moment generating functions
 - o Tchebysheff's theorem
- Continuous Random Variables
 - o Continuous random variables, mean/expectation, variance
 - o Uniform, Normal, Beta and Gamma distributions
 - o Moments and moment generating functions
 - o Tchebysheff's theorem
- Multivariate Distributions
 - o Bivariate and multivariate distributions
 - o Marginal and conditional distributions
 - o Independent random variables
 - o Covariance
 - o Expectation and covariance of a function of random variables
 - o Multinomial distribution
- Functions of Random Variables
 - o Finding the probability distribution of a function of random variables using
 - o Method of distribution functions
 - o Method of transformations
 - o Method of moment generating functions
 - o Finding multivariate transformations using the Jacobian
 - o Order statistics
- Sampling Distributions
 - o Sampling Distributions related to the normal distribution
 - o The Central Limit Theorem
 - o Normal approximation to the Binomial distribution

Course Requirements

Students must complete the course with a passing average on the tests and final exam

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

Homework will be assigned, collected, and graded. Homework grades will be used to determine bonus points on the tests and the final. After the answer to a homework assignment is discussed in class, late submission of the assignment will not be accepted. Occasionally, a student may have a valid reason for not being able to turn in a homework assignment on time. In this situation, the student might receive an excuse for the assignment but it is the responsibility of the student to explain the reason for not being able to complete the assignment on time. The course grade is determined as follows:

- A 90-100
- B 80- 89
- C 70- 79
- D 60- 69
- F below 60

Course Timeline

There will be three tests worth 100 point each plus a comprehensive final worth one and a half tests. The chapters covered on each test are as follows:

Test 1: Chapters 2 – 3

Test 2: Chapters 4 – 5

Test 3: Chapters 6 – 7

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.