Statistics 4201: Introduction to Mathematical Statistics I
Autumn 2017 Syllabus

Instructor: Chris Bomba
Office: 212C Cockins Hall
Office Hours: Thursday 7:30am – 8:50am, or by appointment
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Logistics: This section of Stat 4201 meets Mondays, Wednesdays, and Fridays from 8:00am-8:55am in Mendenhall Lab 100. Recitations meet on Tuesdays – Please check your schedule for the time and location of your recitation.

Text: John E. Freund's *Mathematical Statistics with Applications*, 8th edition, by I. Miller and M. Miller, Pearson Prentice Hall, 2012

Calculator: Any calculator functionally equivalent to a TI-83/84 or below is permitted during tests and quizzes. No calculator with symbolic manipulation capabilities such as a TI-89 or above will be allowed. No cell phone calculators will be allowed on any test or quiz.

Prerequisite: Prereq: C- or better in Math 2153, 2162.xx, 2182H, or 4182H, or permission of instructor. Not open to students with credit for 6201, 6301, 6801, 4202, or Math 4530.

Website: The official course website is carmen.osu.edu. Check Carmen frequently (at least three times per week) for announcements about the class and other class material.

Final Grade: Your final course grade will be based on the following weighting of assessment components:

Homework	10%
Quizzes	15%
Midterm 1	20%
Midterm 2	20%
Final Exam	35%

Letter grades will be assigned based on the following grading scale:

A	93 – 100	A-	90 – 92	B+	87 – 89	B	83 – 86	B-	80 – 82
C+	77 – 79	C	73 – 76	C-	70 – 72	D	60 – 69	E	0 – 59

Exams: There are two midterm exams during the term, as well as a final exam. The final exam will be comprehensive. Statistical tables will be provided as needed.
Midterm 1: Monday, September 25, 8:00am-8:55am in Mendenhall Lab 100
Midterm 2: Monday, October 30, 8:00am-8:55am in Mendenhall Lab 100
Final Exam: Monday, December 11, 8:00am-9:45am in Mendenhall Lab 100

Notes for Use on Exams: One 8.5 x 11-inch sheet of paper (double-sided), with whatever facts, formulas, examples, or explanations you find helpful, may be brought to each of Midterms 1 and 2. You may handwrite or type your sheet of notes. Two 8.5 x 11-inch sheets of paper may be brought to the final exam. Statistical tables will be provided as needed. No other aids (textbooks, notebooks, cell phones, etc) may be used during these exams.

Academic Misconduct: Please help us to maintain an academic environment of mutual respect, fair treatment, and personal growth. You are expected to produce original and independent work for exams. Although students are often encouraged to work together on homework assignments, all students must submit their own work in their own words. It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct (http://studentlife.osu.edu/pdfs/csc_12-31-07.pdf).

Addressing Issues of Differing Abilities: Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Students with documented disabilities must also contact the Office of Disability Services (ODS) in 150 Pomerene Hall (phone 292-3307) to coordinate reasonable accommodations for the course. ODS forms must be given to me as early in the semester as possible to be filled out and returned to you.

Date	Lecture topic (textbook readings)
8/23	Intro to probability; Review of combinations and permutations (Ch 1, 2.1-2.4)
8/25	Probability rules, conditional probability (2.4-2.5)
8/28	Conditional probability, independent events (2.6-2.7)
8/30	Bayes' Theorem (2.8)
9/1	Random variables and probability distributions (3.1-3.2)
9/4	**No Class – Labor Day**
9/6	Continuous random variables and probability density functions (3.3-3.4)
9/8	Multivariate and conditional distributions (3.5)
9/11	Marginal and conditional distributions (3.6-3.7)
9/13	Expected value (4.1-4.2)
9/15	Moments and moment-generating functions (4.3, 4.5)
9/18	Moment generating functions, product moments (4.5-4.6)
9/20	Product moments (4.6)
9/22	Review for Midterm 1
9/25	**Midterm 1 (1.1-4.6)**
9/27	Moments of linear combinations of random variables (4.7)
9/29	Conditional expectations (4.8)
10/2	Discrete uniform, bernoulli distributions (5.1-5.3)
10/4	Binomial distribution (5.4)
10/6	Negative binomial, geometric distributions (5.5)
10/9	Hypergeometric distribution (5.6)
10/11	Poisson distribution (5.7)
10/13	**No Class – Autumn Break**
10/16	Multinomial distribution (5.8)
10/18	Continuous density functions, uniform distribution (6.1-6.2)
10/20	Gamma, exponential, chi-square distributions (6.3)
10/23	Beta, Weibull, and Pareto distributions (6.4)
10/25	Normal distribution, normal approximation to the binomial (6.5-6.6)
10/27	Review for Midterm 2
10/30	**Midterm 2 (4.7-6.6)**
11/1	Functions of random variables, distribution function technique (7.1-7.2)
11/3	Transformation techniques: one variable (7.3)
11/6	Transformation techniques: one and two variables (7.3-7.4)
11/8	Transformation techniques: two variables (7.4)
11/10	Moment generating function technique (7.5)
11/13	Sampling distributions, sampling distribution of the mean (8.1-8.2)
11/15	Sampling distribution of the mean, central limit theorem (8.2)
11/17	Distribution of the mean in finite populations (8.3)
11/20	Chi-square distribution (8.4)
11/22	**No Class – Thanksgiving Holiday**
11/24	**No Class - Columbus Day Observed**
11/27	Chi-square distribution (8.4)
11/29	t distribution (8.5-8.6)
12/1	F distribution (8.5-8.6)
12/4	Review for Final Exam
12/6	Review for Final Exam
Final Exam - Monday, December 11, 8:00am - 9:45am	