

COURSE LEARNING OUTCOMES

DEPARTMENT: Mathematics

<p>COURSE #: 17300 COURSE TITLE: Intro to Probability and Statistics TERM OFFERED: every term CATEGORY: regular PRE-REQUISITES: Placement by the department PRE/CO-REQUISITES: HOURS/CREDITS: 4 hrs./ week; 4 credits. DATE EFFECTIVE: Spring 2021 COURSE SUPERVISOR Shirshendu Chatterjee</p>	<p>CATALOG DESCRIPTION Descriptive statistics and frequency histograms; measures of location and dispersion; elementary probability; permutations and combinations; multiplication rule and conditional probability; Bayes' Theorem; independent events; random variables, expected values; applications to binomial, hypergeometric, uniform and normal distributions; the Central Limit Theorem; testing statistical hypotheses; correlation; linear regression and least squares. Required Text: Introduction to Probability and Statistics, Mendenhall, Beaver, Beaver. Fourteenth Edition, 2013. Brooks Cole.</p>
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COURSE LEARNING OUTCOMES

Please describe below all learning outcomes of the course, and indicate the letter(s) of the corresponding Departmental Learning Outcome(s) (see list at bottom) in the column at right.

	After taking this course the student should be able to:	Contributes to Departmental Learning Outcome(s):
1	Describe and summarize discrete data graphically and compute statistical measures of centrality and dispersion.	a, b, d,
2	Compute probabilities of elementary events by constructing sample spaces and applying rules of permutations and combinations, additive and multiplicative laws, conditional probability, Bayes rule and independence.	a, b,
3	Construct probability distributions of commonly used random variables, compute their expectation and variance, and identify real-world situations where such random variables can be used as models.	a, b, c, d,
4	Use the Central limit theorem to approximate the distribution of sample mean.	a d, e2,
5	Test elementary statistical hypotheses and compute elementary confidence intervals.	a d, e2,
6	Compute correlation between two random variables as a measure of association, and compute and interpret sample correlation coefficient.	a, c, d,
7	Apply least square method to obtain linear regression functions.	a, c, d, e2,

COURSE ASSESSMENT TOOLS

Please describe below all assessment tools that are used in the course.

You may also indicate the percentage that each assessment contributes to the final grade.

1. Final exam: 40%
2. Term average: 60%

DEPARTMENTAL LEARNING OUTCOMES (to be filled out by departmental mentor)

- a. perform numeric and symbolic computations
- b. construct and apply symbolic and graphical representations of functions
- c. model real-life problems mathematically
- d. use technology appropriately to analyze mathematical problems
- e. state (e1) and apply (e2) mathematical definitions and theorems
- f. prove fundamental theorems
- g. construct and present (generally in writing, but, occasionally, orally) a rigorous mathematical argument.