

Department of Mathematics

Course Profile

Course Number: MATH 231	Course Title: Statistics I
Required / Elective : Required	Pre-requisite: None
Catalog Description: Introduction to statistics; describing data, frequency distributions, graphic presentation, numerical measures; probability concepts; discrete probability distributions; normal probability distribution; sampling methods; estimation and confidence intervals; one-sample hypotheses testing.	Textbook / Required Material : Douglas A. Lind, William G. Marchal, Samuel A. Wathen, <i>Basic Statistics for Business and Economics</i> , McGraw-Hill, New York, 2006 (5 th Edition)
Course Structure / Schedule: (3+0+0) 3 / 5 ECTS	
Extended Description: The course aims to provide basic concepts of probability and statistics for business and economics. To this end, the course covers conceptual as well as practical skills, including: Terminology and concepts of statistics, Fundamentals of descriptive statistics, Constructing a frequency distribution and portraying data graphically, Fundamentals of probability, discrete and continuous probability distributions, Fundamentals of inferential statistics, Sampling, sampling methods, and the Central Limit Theorem, One-sample tests of hypothesis.	
Design content: None	Computer usage: No particular computer usage required.
Course Outcomes: By the end of this course, students will be able to:	
<ol style="list-style-type: none"> 1. recognize and articulate basic terms and concepts related to probability and statistics [1] 2. distinguish between statistical and inferential statistics [1] 3. distinguish between a discrete and a continuous probability distribution [1] 4. demonstrate how to portray data graphically using a histogram [1,2] 5. demonstrate how the Central Limit Theorem applies in inference [1,2,6] 6. prepare a frequency distribution from raw data [1,2] 7. interpret the meaning of a confidence interval [1,2] 8. interpret the results of a one sample tests of hypothesis [1,2,6] 9. combine probability and statistics for the purpose of making better predictions [1,2,6] 	
<p>[1] demonstrate the ability of solving problems by using techniques from calculus, linear algebra, differential equations, probability and statistics,</p> <p>[2] demonstrate knowledge of mathematics to construct, analyze and interpret mathematical models,</p> <p>[6] have a basic knowledge of the main fields of mathematics, including analysis, algebra, differential equations, differential geometry,</p>	

Recommended reading: Irwin Miller, Marylees Miller, *Mathematical Statistics*, Houghton Mifflin Company, 2000 (6th Edition)

Teaching methods: Lectures

Assessment methods: Homework, midterm exams, final exam

Student workload:

Preparatory reading 50 hrs

Lectures, workshop, discussions 50 hrs

Homework 20 hrs

Examinations 5 hrs

TOTAL 125 hrs to match 25x5 ECTS

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