Department of Mathematics

Course Profile

Course Number : MATH 232	**Course Title : Statistics II**
Required / Elective : Elective	**Pre-requisite :** MATH 231
Catalog Description: Two-sample hypothesis testing; analysis of variance; linear regression and correlation; multiple regression and correlation analysis; chi-square applications for nominal data; timeseries analysis.	**Textbook / Required Material** : Douglas A. Lind, William G. Marchal, Samuel A. Wathen, *Basic Statistics for Business and Economics*, McGraw-Hill, New York, 2008 (6th Edition)

Course Structure / Schedule: (3+0+0) 3 / 5 ECTS

Extended Description :

The course is the continuation of MATH231. To this end, the course covers conceptual as well as practical skills, including:

- Two-sample tests of hypothesis
- Analysis of variance (ANOVA)
- Linear regression and correlation analysis
- Multiple regression and correlation analysis
- Chi-square applications

Design content: None	**Computer usage:** None

Course Outcomes: [relevant program outcomes in brackets]:

By the end of this course, students will be able to:

1. demonstrate an understanding of two-sample hypothesis testing **[1,2,6]**
2. compute and interpret correlation between two variables **[1]**
3. distinguish between one-sample and two-sample tests of hypothesis **[1,2,6]**
4. interpret and use a linear and multiple regression model for purposes of description and prediction **[2]**
5. recognize the basic logic of ANOVA **[1,2]**
6. interpret and use ANOVA tables to draw conclusions about populations **[2]**
7. interpret and use the chi-square goodness of fit test to ascertain whether the data from a process fit a specified distribution **[2]**
8. demonstrate the ability to apply appropriate statistical techniques to analyze data **[2,7]**

[1] demonstrate the ability of solving problems by using techniques from calculus, linear algebra, differential equations, probability and statistics,
[2] demonstrate knowledge of mathematics to construct, analyze and interpret mathematical models,
[6] have a basic knowledge of the main fields of mathematics, including analysis, algebra, differential equations, differential geometry,
[7] have an ability to function both independently and as a member of a multidisciplinary team,

Recommended reading Irwin Miller, Marylees Miller, *Mathematical Statistics,* Houghton Mifflin Company, *2000 (6th Edition)*	
Teaching methods: Lectures.	
Assessment methods: Midterm exams, final exam.	

Student workload:

Preparatory reading	50 hrs
Lectures, workshop, discussions	50 hrs
Homework	20 hrs
Examinations	5 hrs
TOTAL ……………………………	**125 hrs**

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