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| **ISHIK UNIVERSITY FACULTY OF SCIENCE Department of INFORMATION TECHNOLOGY,2017-2018 Spring Course Information for** **IT 347 PROBABILITIES AND STATISTICS** |

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| --- | --- |
| **Course Name:** | PROBABILITIES AND STATISTICS |
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| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course type** | **Regular Semester** | **Theoretical** | **Practical** | **Credits** | **ECTS** |
| IT 347 | 2 | 5 | 3 | - | 3 |  |

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| **Name of Lecturer(s)-Academic Title:** | Alaa Ghazi - |
| **Teaching Assistant:** | - |
| **Course Language:** | English |
| **Course Type:** | Non-area Elective |
| **Office Hours** | 9 AM to 5 PM  |
| **Contact:** | Email:alaa.ghazi@ishik.edu.iq Tel:Tel  |
| **Teacher's academic profile:** | M. Sc. in Computer Engineering B. Sc. in Electronic and Communications Engineering  |
| **Course Objectives:** | This course emphasizes the use of basic probability concepts and statistical theory in the estimation and testing of single parameter and multivariate relationships. Computer labs, using Microsoft Excel, emphasize the calculation of descriptive statistics, probabilities and least squares regression coefficients in situations applicable to business and economic event. |
| **Course Description (Course overview):** | This course emphasizes the use of basic probability concepts and statistical theory in the estimation and testing of single parameter and multivariate relationships. Computer labs, using Microsoft Excel, emphasize the calculation of descriptive statistics, probabilities and least squares regression coefficients in situations applicable to business and economic events. |
| **COURSE CONTENT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Hour** |               **Date**               | **Topic** |
| **1** | 3 | 4-8/2/2018 | Syllabus Description |
| **2** | 3 | 11-15/2/2018 | Introduction to Probability |
|  |  |  |  |
| **3** | 3 | 18-22/2/2018 | Sample space, events, combinations |
| **4** | 3 | 25/2-1/3/2018 | Probability and conditional probability |
|  |  |  |  |
| **5** | 3 | 4-8/3/2018 | Concept of random variable |
| **6** | 3 | 25-29/3/2018 | Discrete and continuous probability distributions |
|  |  |  |  |
| **7** | 3 | 1-5/4/2018 | Midterm Exam |
| **8** | 3 | 8-12/4/2018 | Mathematical expectation -I |
|  |  |  |  |
| **9** | 3 | 15-19/4/2018 | Midterm Exam |
| **10** | 3 | 22-26/4/2018 | Some Discrete Probability Distributions |
|  |  |  |  |
| **11** | 3 | 29/4-3/5/2018 | Some Continuous Probability Distributions |
| **12** | 3 | 6-10/5/2018 | Fundamental Sampling Distribution and Data Description |
|  |  |  |  |
| **13** | 3 | 13-17/5/2018 | Sample Estimation Problem |
| **14** | 3 | 20-24/5/2018 | Review |
|  |  |  |  |
| **15** | 3 | 27-31/5/2018 | Final Exam |
| **16** | 3 | 3-7/6/2018 | Final Exam |
|  |  |  |  |
| **17** | 3 | 10-14/6/2018 | Final Exam |

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| **COURSE/STUDENT LEARNING OUTCOMES**

|  |  |
| --- | --- |
|  |  |
| **1** | Describe and apply the axiom systems of the probability theory |
| **2** | Distinguish and explain discrete and continuous random variables |
| **3** | Describe and compute random variables |
| **4** | Illustrate examples of probability distributions |
| **5** | Test estimation theory |

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| **COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES**(Blank : no contribution, I: Introduction, P: Profecient, A: Advanced )

|  |  |  |
| --- | --- | --- |
|  | **Program Learning Outcomes** | **Cont.** |
| **1** | An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution | P |
| **2** | An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs |  |
| **3** | An ability to function effectively on teams to accomplish a common goal |  |
| **4** | An understanding of professional, ethical, legal, security, social, and economic issues and responsibilities |  |
| **5** | An ability to analyze the local and global impact of computing on individuals, organizations, and society | P |
| **6** | An ability to use current techniques, skills, and tools necessary for computing practice | I |
| **7** | An ability to use and apply current technical concepts and practices in the core information technologies of human computer interaction, information management, programming, networking, web systems and technologies |  |
| **8** | An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems | P |
| **9** | An ability to effectively integrate IT-based solutions into the user environment | I |
| **10** | An ability apply problem solving skills, core IT concepts, best practices and standards to information technologies | I |
| **11** | An ability to identify and evaluate organizational requirements and current and emerging technologies | I |
| **12** | An ability to select, design, integrate and administer IT-based solutions into the organizational environment |  |

 |
| **Prerequisites (Course Reading List and References):** | Discrete Mathematics, Calculus |
| **Student's obligation (Special Requirements):** | 1. Attendance in the class 2. Solve the classwork 3. Solve the homework 4. Solve some extra problems |
| **Course Book/Textbook:** | "Probability and Statistics for Engineers and Scientists", Walpole, Myers, Myers & Ye: , Prentice Hall, 8th ed. |
| **Other Course Materials/References:** | "Probability and Statistics in Engineering 4th Edition", by William W. Hines ,‎ Douglas C. Montgomery,‎ David M. Goldsman,‎ Connie M. Borror. |
| **Teaching Methods (Forms of Teaching):** | Lectures, Excersises, Presentation, Assignments |
| **COURSE EVALUATION CRITERIA**

|  |  |  |
| --- | --- | --- |
| **Method** | **Quantity** | **Percentage (%)** |
| Participation | 1 | 6 |
| Quiz | 2 | 5 |
| Homework | 2 | 12 |
| Midterm Exam(s) | 1 | 20 |
| Final Exam | 1 | 40 |
| **Total** | **100** |
| **Examinations:**Fill in the Blanks, Multiple Choices, Short Answers, Matching |  |  |

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| **Extra Notes:** |
| **ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD**

|  |  |  |  |
| --- | --- | --- | --- |
| **Activities** | **Quantity** | **Duration (Hour)** | **Total Work Load** |
| Course Duration (Including the exam week: 16x Total course hours) | 16 | 3 | 48 |
| Hours for off-the-classroom study (Pre-study, practice) | 5 | 1 | 5 |
| Assignments Mid-terms | 1 | 1 | 1 |
| Final examination | 1 | 2 | 2 |
| Other |  |  | 0 |
| **Total Workload** | **56** |
| **ECTS Credit (Total workload/25)** | **2.24** |

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**Peer review**

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| --- | --- | --- |
| Signature: | Signature: | Signature: |
| Name: | Name: | Name: |
| Lecturer                                                                       | Head of Department                                                         | Dean |

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