|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Identification** | Department | School of Engineering | | |
|  | Program | Undergraduate | | |
|  | Subject | Statistics – 3KU/6ECTS credits | | |
|  | Term | Fall Semester 2017 | | |
|  | Instructor | Vusal Mammadrzayev | | |
|  | E-mail | [v.mammadrzayev@iset.ge](mailto:v.mammadrzayev@iset.ge) | | |
|  | Classroom/hours | Thursday 18:40-21:00 | | |
|  | Language | English | | |
| **Prerequisites** | - Mathematics skills  - Curiosity about Statistics | | | |
| **Compulsory/**  **Elective** | Compulsory | | | |
| **Textbooks and course materials** | 1)Paul Newbold, William L.Carlson and Betty M.Thorne **``Statistics for Business and Economics’’**, 8th edition, 2013. (NW)  2) Ronald E. Walpole, Raymond H. Myers and Sharon H.Myers **“Probability and Statistics for Engineers and Scientists”**, 8th edition, 2007 (WMM)  **Supplementary book:**  **Statistics for Managers Using Microsoft Excel** by D. Levine, D.Stephan, T.Krehbiel, M.Berenson, 6th edition, 2011. | | | |
| **Grading System** | **Methods** | | **Percentage (%)** | |
| Midterm Exam | | 25 | |
| Home Assignments | | 10 (Students have to submit their group projects by the end of the first week of November. This assignment will allow students to do small statistical analysis and apply techniques that was taught throughout lectures. The topic of assignment for each group will be assigned by Instructor and Students will form groups consisting of 3 students in each. Students are required to provide a Report and 10 minutes Presentation based on their assigned topics. The exact deadline for submission of Report will be announced during the lecture. The detailed feedback and further comments related to structure and quality of Report will be provided by Instructor after submission.  This assignment gives an opportunity for students to conduct research independently and use the statistical tools and techniques that acquired through Lectures and practical sessions.  ). | |
| Quizzes (2) | | 7.5 (Each quiz is 7.5% of final grade and will take 35 minutes) | |
| Attendance/Participation | | 10 (each 5%) | |
| Final Exam | | 40 | |
|  | Total | | 100 | |
| **Course objective and content** | The first course in the core statistics sequence cover topics in Probability Theory and Mathematical Statistics. The main purpose of these courses is to provide you with a foundation of statistics and probability. The tools learned in these courses are essential building blocks for the other econometrics courses in the sequence. Focus in these courses will be on basic principles, including among other things: probability, random variables, conditional probability, probability densities and distributions, characteristic functions, test statistic formulation and distribution theory, statistical inference, and basic regression. Emphasis will be placed on applied problem solving using the tools learned in the class. | | | |
| **Learning Outcomes** | After this course, students will be able to calculate descriptive and numerical measures and probabilities based on both sample and population datasets in order to make initial inferences about population parameters. Furthermore, they will acquire skills to test population parameters by using Hypothesis testing based on sample observations. During the lectures, students will obtain insights about the involvement of statistical methods in real business and economic applications. | | | |
| **Class Participation and Attendance** | * **Attendance Policy**   5 % of final grade will be given for class attendance. Students should attend all classes. The proof of reason for unavoidable absence has to be provided by student. In this case, the absence will not be resulted with grade subtraction.  Students should come to the classes on time. Late arrival more than 15 minutes will be resulted as absence on the attendance sheet. In case of late arrival, student has to inform Instructor in advance.  **Important Note: If the student miss 25% of the all classes during the semester, he or she will not be allowed to participate in examination.**   * **Class participation in this course:**   5% of the final grade will be given for class participation. It is required from students to contribute to the class discussion and actively participate in team works. The quality of contribution will be the main factor not the quantity of contribution. | | | |
| **Academic Dishonesty** | Students are expected to conduct themselves in a professional manner. Academic dishonesty such as plagiarism and cheating will not be tolerated. Therefore, students are expected to be honest and ethical in their academic work. Cases of academic dishonesty will be immediately reported to the Director’s office for disciplinary action. | | | |
| **Office Hours** | The instructor will be available to consult with students regarding class related questions regularly by appointment. Meetings with students outside office hours should be scheduled in advance by sending an e-mail to the instructor. | | | |
| **Tentative Schedule** | | | | |
| **Week** | **Topics** | | | **Textbook/Chapters** |
| 1) 16.02.2017 | Using Graphs to Describe Data | | | Chapter 1 (NW)  Chapter 1(WMM) |
| 2) 23.02.2017 | Using Numerical Measures to Describe Data | | | Chapter 2 (NW)  Chapter 1(WMM) |
| 3) 02.03.2017 | Elements of Chance: Probability Methods | | | Chapter 3 (NW)  Chapter 2(WMM) |
| 4) 09.03.2017 | Discrete and Continuous Probability Distributions (Quiz 1) | | | Chapter 4,5 (NW)  Chapter 3(WMM) |
| 5) 16.03.2017 | Distribution of Sample Statistics | | | Chapter 6 (NW)  Chapter 6(WMM) |
| 6) 23.03.2017 | Holiday | | |  |
| 7) 30.03.2017 | Confidence Interval Estimation: One Population | | | Chapter 7 (NW)  Chapter 9 (WMM) |
| 8) 06.04.2017 | **Midterm-exam** | | |  |
| 9) 13.04.2017 | Hypothesis Test of Single Population | | | Chapter 10 (WMM) |
| 10) 20.04.2017 | Hypothesis Tests of Single Population (cont) | | | Chapter 10 (WMM) |
| 11) 27.04.2017 | Two Population Hypothesis Tests | | | Chapter 10 (NW) |
| 12) 04.05.2017 | Two Variable Regression Analysis (Quiz 2) | | | Chapter 11(NW)  Chapter 11(WMM) |
| 13) 11.05.2017 | Multiple Variable Regression Analysis | | | Chapter 12 (NW)  Chapter 11 (WMM) |
| 14) 18.05.2017 | Further topics on Regression Analysis | | | Chapter 13 (NW) |
| 15) 25.05.2017 | Course Review | | |  |
|  | **Final Exam** | | |  |