**COURSE RECORD**

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| Code | **ECON 206** |
| Name | **Statistics II** |
| Hour per week | 3 (3 + 0) |
| Credit | 3 |
| ECTS | 5 |
| Level/Year | Undergraduate/2 |
| Semester | Spring |
| Type | Compulsory |
| Prerequisites | ECON 205 |
| Coordinator(s) | Prof. Dr. Eyüp DOĞAN |
| Description | The course is designed as a continuation of ECON 205 - Statistics I and it is focused on the broad treatment of applications of statistics, concentrating on techniques used in economics. Subjects such as sampling distributions, one-sample and two-sample hypothesis tests, confidence intervals, chi-square tests, and simple and multiple linear regression are examined throughout the course. It is also aimed to show how to define, collect, organize, visualize and analyze data for an economics problem using statistical techniques. Computer implementations with up-to-date statistical software are also included in the course content. |
| Objectives | Introducing the role of statistics in research and economics.  Improving students’ skills in data gathering and analysis.  Showing how to interpret statistical results.  Providing background and foundational knowledge to support further studies in economic and econometric applications. |
| Learning Outcomes | *By the end of the course, the student will be able to*  LO1. Describe types of hypotheses testing with two samples.  LO2. Interpret chi-square probability distribution as the sample size changes.  LO3. Analyze basic concepts in linear regression and correlation.  LO4. Examine F-Distribution and the one-way ANOVA.  LO5. Apply Multiple Regression Analysis. |
| Requirements |  |
| Teaching Methodology | ***Please keep it as it is unless yours is different***  Learners will be provided with as much opportunities of hands-on practice as possible with the aim of striking a balance between learner-centeredness and sufficient guidance. Various forms of interaction (i.e. pair work and group work) will also be encouraged to cater for learners with different learning styles. Additionally, individuals will be expected to produce both in-class writings and homework assignments in addition to the reading tasks, which will encourage them to reflect and think critically. Technology will also be incorporated into the classroom procedures to create a better learning environment. |
| Reading List | Textbook:  **1) Statistics for Business and Economics, Newbold, Carlson, and Thorne, 2020/9th Global Edition, Pearson Education, Inc.**  Suggested textbooks:  2) Business statistics: A first course, Levine, D. M., Szabat, K. A., & Stephan, D. (2020) 8th Global Edition. Pearson. |
| Ethical Rules and Course Policy | University Ethics (Academic Honesty) Rules |

**ASSESSMENT**

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| --- | --- |
| **Evaluation Criteria** | **Weight** (%) |
| Assignments | 10% |
| Midterm Exam 1 | 25% |
| Midterm Exam 2 | 25% |
| Final Exam | 40% |
| Total | 100% |

For a detailed description of grading policy and scale, please refer to the website <https://goo.gl/HbPM2y> section 28.

**COURSE LOAD**

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| --- | --- | --- | --- |
| **Activity** | **Duration** (hour) | **Quantity** | **Work Load** (hour) |
| In class activities | 3 | 14 | 42 |
| Assignments | 3 | 1 | 3 |
| Required Readings | 1 | 10 | 10 |
| Research (web, library) | 1 | 10 | 10 |
| Pre-work for Midterm Exam | 10 | 2 | 20 |
| Pre-work for Final Exam | 20 | 1 | 20 |
|  |  | **General Sum** | **105** |

**ECTS: 5** (Workload/25-30)

**WEEKLY SCHEDULE**

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| --- | --- | --- | --- | --- |
| **W** | **Date** | **Topic** | **Activities/Assignments** | **Outcomes** |
| **1** |  | Fundamentals of Hypothesis Testing: One-Sample Tests | In class activities, required readings, research (web, library) | LO1 |
| **2** |  | Fundamentals of Hypothesis Testing: Two-Sample Tests | In class activities, required readings, research (web, library) | LO1 |
| **3** |  | Chi-Square distribution | In class activities, required readings, research (web, library), assignments | LO2 |
| **4** |  | Chi- Square Goodness-Of- Fit Test | In class activities, required readings, research (web, library) | LO2 |
| **5** |  | Chi- Square Test of Independence | In class activities, required readings, research (web, library) | LO2 |
| **6** |  | Chi-Square Test of Homogeneity | In class activities, required readings, research (web, library) | LO2 |
| **7** |  | Testing Single Population Variance | In class activities, required readings, research (web, library) | LO3 |
| **8** |  | Lecture Free Week |  |  |
| **9** |  | Estimating a Population Variance | In class activities, required readings, research (web, library) | LO3 |
| **10** |  | Linear Regression | In class activities, required readings, research (web, library) | LO3 |
| **11** |  | Correlation | In class activities, required readings, research (web, library) | LO3 |
| **12** |  | Prediction with Regression Equation | In class activities, required readings, research (web, library) | LO3 |
| **13** |  | Analysis of Variance (ANOVA) | In class activities, required readings, research (web, library) | LO4 |
| **14** |  | Hypothesis Test for Variances in Two Samples using F-distribution | In class activities, required readings, research (web, library) | LO4 |
| **15** |  | Multiple Linear Regression | In class activities, required readings, research (web, library) | LO5 |