**Faculty of Economics and Business, University of Debrecen**

**academic year 2015/16**

**Institute**: UD Faculty of Informatics, Dep. of Applied Mathematics and Probability Theory

**Program**: BA in MBA

**Course title and Neptun-code: Satistics I KTE10071**

**Semester: 2016-17/I**

**Classes per week**: 2+2 **Course credit value**: 5

**Prerequisites**: Mathematics II

**INSTRUCTORS:**

**József Gáll (UD Faculty of informatics, Kassai Street/Campus, Informatics Building, I216, gall.jozsef „at” inf.unideb.hu,** office hours: Tuesday 12.10-13.00; Wednesday 10.00-10.50**),**

**Péter Balogh (UD, Faculty of Economics, Building A, floor II, 212, balogh.peter „at” econ.unideb.hu)**

1. **COURSE GOALS:**

To introduce the students to the basic concepts of statistics; descriptive statistics: analysis of quantitative variables; stochastic relationships, graphical methods; sampling; estimation theory, point and interval estimation, basics of hypothesis tests, applications and case studies using SPSS.

1. **COURSE SCHEDULE**

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| --- | --- | --- |
| **Week, date** | **Topic** | **Lecture/seminar/Readings, assignments** |
| week 1 | Data and Statistics | Chapter 1, [1], pp 1-20 |
| week 2-3 | Descriptive Statistics: Tabular and Graphical Presentation | Chapter 2, [1], pp 21-66 |
| week 4-5 | Descriptive Statistics: Numerical Measures | Chapter 3, [1], pp 67-116 |
| week 6 | Discrete Probability Distributions | Section 5.1-5.4, [1], pp 153-186 |
| week 7 | Continuous Probability Distributions | Section 6.1-6.4, [1], pp 187-218 |
| week 8-9 | Sampling and Sampling Distributions | Chapter 7, [1], pp 219-250 |
| week 10-12 | Interval estimation | Chapter 8, [1], pp 251-282 |
| week 13-14 | Hypothesis Tests | Chapter 9, [1], pp 283-334 |
| week 15 | Summary, question time |  |

During the seminars we solve exercises from the book either we calculate directly the solutions or we use SPSS for getting the solutions.

1. **COURSE AND EXAM REQUIREMENTS**

*The students may miss at most 3 seminars. In case of missing more than 3 seminars the seminar is not completed, hence the course is not completed (i.e. one cannot take an exam).* For this, a class attendance list will be made each week, which can be signed by the students only in the first 10 minutes of the seminar.

1. **ASSESSMENT AND GRADING:**

The student can choose a ‘two part’ exam. In this case the results of the two test papers are included in the final grade (50%-50%). The first test of the ‘two part’ exam will be in the middle of the semester, whereas the second will take place in the first exam week. The tests include both theoretical questions (for this, key terms and key formulas at the end of the chapters give hints) and practical exercises with or without SPSS outputs. Further exams (for those who do not choose the two part exam opportunity or those who fail it) will be ‘one part’ exams (in the exam period), i.e. all chapters covered in the course will be required. The ‘two part’ exam cannot be repeated partially (i.e. only one part of it cannot be rewritten), only the whole exam can be rewritten in the exam period (as a ‘one part’ exam).

The usage of classical pocket calculators is allowed in the exams, but no other electric device with further options (e.g. mobile phones, tablet pc-s, or devices with picture, pdf file and other file viewer or with any type of wireless options) can be used.

Grades: 0-49% fail (mark 1), 50-59% satisfactory (mark 2), 60-69 % average (mark 3), 70-84% good (mark 4), 85-100 excellent (mark 5), we use rounding up (e.g. 49.3% is satisfactory).

First test of the two-part exam covers:

* Data and Statistics (Chapter 1, [1], pp 1-20),
* Descriptive Statistics: Tabular and Graphical Presentation (Chapter 2, [1], pp 21-66),
* Descriptive Statistics: Numerical Measures (Chapter 3, [1], pp 67-116),
* Discrete Probability Distributions (Section 5.1-5.4, [1], pp 153-186).

whereas the second one covers:

* Continuous Probability Distributions (Section 6.1-6.4, [1], pp 187-218),
* Sampling and Sampling Distributions (Chapter 7, [1], pp 219-250),
* Interval estimation (Chapter 8, [1], pp 251-282),
* Hypothesis Tests (Chapter 9, [1], pp 283-334).

The students are suggested to recall basic notions of probability theory (e.g. based on Introduction to Probability, Chapter 4, [1], pp 115-152), furthermore, Sections 5.5, 5.6 (Poisson and Hypergeometric Distributions) are suggested reading.

1. **COMPULSORY READINGS**

[1] Anderson, Sweeney, Williams, Freeman and Shoesmith: Statistics for Business and Economics, Second edition, ISBN: 1408018101, Cengage Learning EMEA, 2010, UK, [www.cengage.co.uk/aswsbe2](http://www.cengage.co.uk/aswsbe2)

Note that for most of the topics one can also use other edition of book [1], in which case one should pay attention to the minor differences in the two editions. **However, the exercises we shall solve will be from edition 2. So one should have the exercises from the right edition.**

Note also that minor further details, materials, problems shall be dicsussed int he lecture.

1. **RECOMMENDED READINGS**

L.J. Bain & M. Engelhardt, Introduction to probability and mathematical statistics, Duxbury, 2nd edition, 1992

Davis R. Anderson et al, Statistics for Business and Economics, South-Western Educational Publishing, 2001

Handouts, lecture notes

J. A. Rice: Mathematical Statistics and Data Analysis, Duxbury Press, 2nd edition, 1994

Afriat,S. N: The Price Index and its Extension: A Chapter in Economic Measurement, ROUTLEDGE, 2004

SPSS Manual Books

Matthew J. Zagumny: The Spss Book: A Student Guide to the Statistical Package for the Social Sciences, Writers Club Press, 2001

1. **OTHER**

**Debrecen, 30 August 2016**

József GÁLL

associate prof.

*The Regulation of Studies and Examinations and the Code of Ethics of the University of Debrecen apply to all questions related to the course and requirements.*