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| **Course Code and Title** | |
| **MLI36A020 Introduction to Statistics** | **6 cr** |
| **Learning Outcomes and Content** | |
| Learning outcomes for this course, upon successful completion, include the ability to: 1) know and select a tool or measure appropriate to the task and to the measurement nature of the variables, 2) use basic descriptive statistics of central tendency and cross-tabulation to summarize data, 3) learn how to visually present data, such as graphing, table construction, and decision trees, 4) understand populations and sample sizes and their effect on statistical results, 5) use statistical estimation, correlation, and classical statistical tests for simple and multiple regression analyses, 6) understand the use of inferential statistics as a method of decision-making when faced with uncertainty, 7) apply hypothesis testing with confidence intervals for categorical and continuous variables, and 8) use data analysis software, such as the Excel data analysis tool pack, to analyze data and present visualizations of it.  Content:  In this course, the student is introduced to the subject of business statistics to explore quantitative analyses in business, the basic procedures in problem solving, and the sources and types of data used by business firms. Basic statistical analysis will be used by the student to summarize and describe numeric data and to perform inferential statistical analysis to test hypotheses. Emphasis will be placed on learning how to select the appropriate tool to solve problems associated with statistical uncertainty. | |

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| **InstructorName and Profile** |
| Roman Stepanov worked at Newcastle Business School from 2005 until 2022. First, Roman held the position of graduate tutor. In 2009 Roman successfully defended his PhD thesis entitled ‘Institutional Change in Russian Corporate Governance: An Analysis of Corporate Disputes’. Since then, Roman was promoted to the position of senior lecturer in the Accounting and Finance subject group. Recently Roman relocated to Finland and jointed Lappeenranta University of Technology as a lecturer in quantitative finance.  Roman teaches finance, mathematics and statistics at undergraduate, corporate as well as postgraduate levels. In addition to this, Roman developed and delivered methodological workshops for staff and PhD students at Newcastle Business School and beyond. He has also delivered courses at overseas partner institutions in Hong Kong, Singapore, Qatar and Germany. Roman has considerable experience in standard, block and distance learning modes of delivery of academic content.  Roman’s research interests are in the area of quantitative analysis covering topics such as reported corporate disputes, corporate cash holdings, composition of UK boards, event studies and Asset Pricing Models. Roman currently works on a book chapter dedicated to sensitivity analysis in investment appraisal.  Roman is also active in thesis supervisions at both undergraduate and postgraduate levels in a variety of international universities. |

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| **Email Address** |
| roman.stepanov@lut.fi |

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| **Office Hours** |
| My office hours are after 13:00 on weekdays (except for Mondays). Additionally, you can request a meeting by email at a mutually convenient time. |

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| **Required Reading** |
| Basic Business Statistics; Global Edition; 14th edition, M. Berenson , D. Levine, Kathryn A. Szabat, & David F. Stephan ISBN-13: 9781292265032  Students are expected to use the latest edition of the book listed above. It is highly recommended not least because we will be making regular references to the book during our classes. |

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| **Course Schedule** | | | |
| **Deduction due to an absence on the first day of the course:** 5 points (on a 100-point scale) will be deducted from the student’s final raw score before converting it to the final grade. If a student is absent on the first day due to illness, and provides the Manager of Academic Operations with a medical certificate, the 5-point deduction will be waived. The Manager of Academic Operations will then inform the instructor of the waived deduction. | | | |
| **Dates** | **Topics** | **Class activities** | **Reading and assessment** |
| Oct. 30  09:00 -12:00 | *Introduction:*  - Introduction to the course  - A word on statistics  - Defining types of data  - Sampling techniques | *Excel:*  - Review of essential skills | Chapter 1  **Homework 1 handed out** |
| Oct. 31  09:00 -12:00 | *Data visualization:*  - Getting to know your data  - Frequency distribution  - Cumulative distribution | Excel:  - Bar chart  - Pie chart  - Scatter plot  - Histogram | Chapter 2 |
| Nov. 01  09:00 -12:00 | *Descriptive Measures*  - Central tendency  - Variability | Excel:  - Mean, median, mode  - VAR, STDEV, COVAR, CORREL | Chapter 3 |
| Nov. 02  09:00 – 12:00 | *Basic Probability*  - Defining simple probability  - Bayes’ theorem | Excel:  Factorials  Bayes Theorem in Excel | Chapter 4 |
| Nov. 03  09:00 -12:00 | *Basic Probability 2*  - Binomial distribution  - Poisson distribution | Binomial distribution in Excel | Chapter 5 |
| Nov. 06  09:00 - 12:00 | *Normal Distribution*  - The role of the mean and standard deviation  - Evaluation of normality | Excel:  Normal distribution in Excel | Chapter 6 |
| Nov. 7  09:00 -12:00 | *Sampling Distributions*  - The central limit theorem  - Normality and the sampling distribution of the mean | Excel:  Central theorem simulation | Chapter 7  **Homework 1 handed in**  **Homework 2 handed out** |
| Nov. 8  09:00 -12:00 | *Confidence Interval Estimation*  - Student’s t-distribution  - Degrees of freedom  - The confidence interval statement | Excel:  Confidence interval for the mean | Chapter 8 |
| **Nov. 09**  **09:00 -12:00** | **Test 1** | | |
| Nov. 10  09:00 -12:00 | *Hypothesis Testing*  - One tail T test  - Two tail T test | Excel:  Running T test | Chapter 9 |
| Nov. 13  09:00 - 12:00 | *Simple Linear Regression*  - Derivation of the coefficients | Excel:  Data analysis tool pack: regression | Chapter 13 |
| Nov. 14  09:00 - 12:00 | *Simple Linear Regression 2*  - Hypothesis testing  - Application in asset pricing  ***- Group presentation*** | Excel:  Data analysis tool pack: regression | **Chapter 13** |
| Nov. 15  09:00 - 12:00 | *Multiple Regression*  - Calculation of the coefficients  - Hypothesis testing | Data analysis tool pack: regression | Chapter 14 |
| Nov. 16  09:00 -12:00 | *Multiple Regression*  - OLS assumptions  Revision | Data analysis tool pack: regression | Chapter 14  **Homework 2 handed in** |
| **Nov. 17**  **09:00 -12:00** | **Test 2** | | |

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| **Grading** | | | | |
| **Course Requirements** | | | Weighting (%) or maximum points | |
| **Test 1 (November 9th)** | | | **30%** | |
| **Test 2 (November 17th)** | | | **40%** | |
| **Homework 1 (due on November 7th)** | | | **10%** | |
| **Homework 2 (due on November 16th)** | | | **20%** | |
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| **Total** | | | **100** | |
| |  |  | | --- | --- | | **Conversion scale** | **Final grade**  **(official scale)** | | 90 - 100 | 5 | | 80 - 89 | 4 | | 70 - 79 | 3 | | 60 - 69 | 2 | | 50 - 59 | 1 | | 0 - 49 | 0 | |  | | | | | | |
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| **ECTS STUDENT WORKLOAD** | | | |
| This course is a 6 ECTS unit course, following the ECTS (European Credit Transfer System) guidelines of Aalto University School of Business. The number of hours the average student is expected to work in the course is 160 (including in-class and out-of-class work). | | | |
| **Types of Hours** | | **Number of Hours** | |
| **Contact hours (on- and off-campus):** | | **45** | |
| **Out-of-class hours:** | | **115** (Sum of fields below) | |
| Work with course materials, eg required reading | | **45** | |
| Exam preparation | | **30** | |
| Individual research & writing | | **20** | |
| Team projects (meetings, research, preparation, etc.) | | **10** | |
| Other (T-test group presentation on 14th November) | | **10** | |
| **Total of all student workload (contact and out-of-class) hours:** | | **160** | |

**ACADEMIC POLICY STATEMENTS**

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| **CODES OF CONDUCT** |
| Academic excellence and high achievement levels are only possible in an environment where the highest standards of academic honesty and integrity are maintained. Students are expected to abide by the Aalto University Code of Academic Integrity, other relevant codes and regulations, as well as the canons of ethical conduct within the disciplines of business and management education.  In addition, the BScBA Program has strict exam regulations in force which must be followed in all test-taking situations. |

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| **TEXTBOOK POLICY** |
| All required textbooks and other course materials are the responsibility of the student. It is the expectation of faculty that all students will have access to the textbooks and other reading material. If a student is not able to purchase his/her own copy of the textbook or other required reading materials, it is nonetheless the student’s responsibility to find a way to complete the reading for the course. |

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| **CLASS ATTENDANCE AND PARTICIPATION** |
| Class attendance and participation are considered integral parts of teaching and learning at the BScBA program in Mikkeli. Therefore, regular class attendance is required of all students and attendance records are kept for each class. Students are also expected to be in class on time.  If the student participates in the final exam/assessment, it will be graded and counted towards the final grade.  The attendance policy of the BScBA program provides that:     1. **A maximum of three absences of any kind** is allowed for a 3-week, 6-credit course. Four or more absences will result in being dropped from the course. 2. Whenever taking an absence, **the student bears the risk of missing class**, and the consequences, which may include a lower participation grade, missing a graded activity, etc. It is up to the course instructor to decide whether or not a graded activity can be completed later. 3. **An absence on the first day of the course** will result in 5 points (on a 100-point scale) being deducted from the student’s final raw score before converting it to the final grade. If a student is absent on the first day due to illness, and provides the Manager of Academic Operations with a medical certificate, the 5-point deduction will be waived. The Manager of Academic Operations will then inform the instructor of the waived deduction. 4. **A student getting to class after the session has started** will not be able to enter the classroom until the first break and will get an absence for the day. 5. It is expected that **students marked present for the day are in class the entire time.** Students leaving class early may be marked absent. 6. **The instructor may include class participation as a component of the grade;** up to 15% of the total points that can be earned toward the final grade. 7. **The instructor may identify up to three days of the course (in addition to the first day) as mandatory,** ie taking an absence on those days would have a direct impact on the course grade.   The instructor for the course will take attendance in classes. The decision to drop a student from a course will be made by the instructor, who will inform Mari Syväoja, Manager of Academic Operations: [mari.syvaoja@aalto.fi](mailto:mari.syvaoja@aalto.fi).  **Addition to the attendance policy of the BScBA Program, Mikkeli Campus:**   * This addition concerns absences in addition to the normal maximum of three that would fall under a category called **Medical and Family Emergency cases**. * Students who want to use this option to complete a course must fulfil these criteria:   + The total absences of the student will exceed the normally allowed three absences due to a major medical problem or family emergency.   + The student will be absent no more than 5 days; exceeding that number of days will result in dropping the course.   + Documentation or a detailed explanation concerning the entire period of the emergency (such as a medical certificate) is provided to the Manager of Academic Operations. * The case-by-case solution will be coordinated by the Manager of Academic Operations, who will deal with the documentation and discuss with the instructor to find a pedagogical solution enabling the student to continue in the course. In case the MAO is on leave, the student should contact the other study office staff. * The solution must not cause a significant increase in the instructor’s workload. The grading elements for the course may be reviewed, and additional assignments may be arranged if feasible. However, a shifting of grading proportions may occur. The course grade might be affected due to the student missing some in-class activities. |
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