

Module Code	ASBM
Module Title	Applied Statistics for Business and Management
Credit	20 (10 ECTS)
Module Leader	dr Veljko Jeremic

Aims

The objectives of this module are:

- Obtaining an in-depth knowledge of data collection methods and data analysis techniques in the context of business data,
- Practical understanding and critical evaluation of a broad range of statistical techniques and numerical tools that can be applied to real-world business problems,
- Gaining the ability to identify and analyse specific issues regarding how managers and practitioners can effectively use data analysis techniques to evaluate and enhance different aspects of organizational performance and formulate policies in the global economy.

Learning Outcomes

Knowledge

On the successful completion of this module, the student will be able to demonstrate a systematic understanding of current research and relevant professional practice of:

1. Design and implementation of a research project including writing a statistical research proposal,
2. Selection and deployment of effectively appropriate strategies for data collection and analysis,
3. Employment of a wide range of quantitative methods, critical evaluation of their benefits and problems, and a usage of statistical techniques in practice to solve a wide range of business and management problems in a structured way,
4. Usage of a statistical software package to estimate and present descriptive statistics for both quantitative and qualitative business and management data,
5. Carrying out the hypothesis testing and understanding the strategic importance of the results for the company,
6. Interpret and communicate the results/outcomes of the data analysis project, thus equipping the future managers with the quantitative tools to help them make rational decisions under uncertain conditions

Skills

On the successful completion of this module, the student will be able to:

7. Learn to select and apply the appropriate statistical techniques to solve particular problems, while using statistical software, and interpret the results,
8. Deal with complex issues of statistical methodology and adequate dissemination of data analysis results,
9. Make effective verbal presentations incorporating material from the module and communicate statistical conclusions clearly,
10. Work effectively as a part of a team or group during the task of collection, analysis and presentation of business data.

Syllabus

- Data collection, sample planning, sampling, and questionnaire design,
- Automatic control and error correction,
- Descriptive analysis; Data collection, analysis, and presentation
- Hypothesis testing,
- Parametric and non-parametric inference,
- The application of linear regression and analysis of variance,
- Multivariate statistical analysis,
- Computational support to statistical research,
- TURF method,
- Modelling structural equations using software packages,
- Formalization and presentation of statistical research in business reports.

Learning, Teaching, and Assessment Strategies

Lectures and seminars will be used to explore key concepts of appropriate strategies for data collection and analysis discussed in the syllabus; Student presentations will be used to select and apply the appropriate statistical techniques to solve certain problems while using statistical software, and consequently, to interpret the results and develop skills of making verbal presentations of achieved results; Case studies will be used to explore possibilities of applying the procedures of hypothesis testing and understand the strategic importance of the obtained results.

Assessment Scheme

Assessment will consist of three assignments:

- Classroom exercises and assignments (10%), where data analysis knowledge will be examined through small tasks and assignment (Learning outcomes 2, 3, 4, 5, 7) (assessment due: end of semester – 12th week),
- In-Course Group assignment (20%), where students write a project proposal, perform the data collection and analysis, and demonstrate it through the verbal and ppt presentations in a group of 2-3 (Learning outcomes 1, 2, 3, 4, 5, 6, 7, 8, 9, 10) (assessment due for final version: 11th week),
- Midterm and final examinations (40%), consisting of two tests (Learning outcomes 2, 3, 4, 5, 6, 7, 8) (assessment due: Midterm examination: 5th week; final examination: 12th week or during the university examination period),
- Individual assignment (30%), where students' knowledge is estimated through the verbal presentations (Learning outcomes 1, 2, 3, 4, 5, 6, 7, 8, 9) (assessment due for final version: end of semester – 12th week),

For individual and group coursework, students will get feedback on draft versions if submitted two weeks before the deadline. After that period, their submitted papers will be considered as final versions. They will have at least one week to correct and improve the document according

to the specific feedback. After submission of final versions, students' papers will be assessed in maximum three weeks. Students are expected to strictly meet the deadlines.

To pass the module, students need to acquire minimum 50% in overall exam: individual assignment minimum 15%, midterm examination minimum 10%, final examination minimum 10%, In-Course Group assignment minimum 10%.

Assessment Weighting

Coursework 60%

Examination 40%

Learning Materials

Essential

- Levin R., *Statistics for Management*, Pearson Education, 2011.
- Shayib M.A., *Applied Statistics*, Bookboon, 2013.

Recommended

- Metcalfe A.V., *Statistics in Management Sciences*, Hodder Education Publishers, 2001.
- Keller G., Warrack B., *Statistics for Management and Economics, Abbreviated Edition*", Thompson, New York, 2006.
- Schumacker R., Tomek S., *Understanding Statistics Using R*, Springer, 2013.
- Hair J., Black W., Babin B., Anderson R., *Multivariate Data Analysis*, Pearson, 2013.
- Keller G., *Statistics for Management and Economics, Abbreviated Edition, 9th Edition*, South-Western, New York, 2012.
- Cargill M., O'Connor P., *Writing Scientific Research Articles – Strategy and Steps*, Wiley BlackWell, 2009.

Total Notional Learning Hours

200