# LITHUANIAN SPORTS UNIVERSITY

## STUDY MODULE PROGRAMME (SMP)

| Module Code | S | 274 | B | 060 | Accredited until | | | | Renewal date | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Branch of Science | | Progr. | Registr. №. | | | | | | | |

Entitlement

Research Methodology II

Prerequisites

Introduction to University Studies, Philosophy of Science

Course (module) Learning Outcomes

| №. | Learning Outcomes | Teaching / Learning Methods | Assessment Methods |
|---|---|---|---|
| 1 | Students will understand data measurement scales, numerical data characteristics and data analysis methods | Exercise classes, Literature analysis | Test |
| 2 | Understand and will be able to perform descriptive data analysis | Exercise classes, Literature analysis | Control work |
| 3 | Understand the essence of correlation and will be able to choose appropriate correlation analysis methods | Exercise classes, Literature analysis | Course work |
| 4 | Understand parametric and non-parametric data analysis methods and will be able to perform inter-sample checks and make statistical conclusions. | Exercise classes, Literature analysis, Practical exercises (tasks) | Individual project |

Main aim

Based on knowledge of science educate capabilities of critical thinking, working independently, understand basical terms of scientific research, analyse scientific information, to plan scientific research.

Summary

The object and the main concepts of statistics. Surveys, surveys, sample collection methods. Data analysis steps. Descriptive statistics. Numerical characteristics of data. Correlation and regression analysis. Sample comparison. Hypotheses and their testing methods. Statistical analysis of non-parametric data. Formation and justification of statistical conclusions.

Level of module

| Level of programme | | Subject group (under the regulation of the area) |
|---|---|---|
| Cycle | Type | |
| First | Bachelor | Specialaus lavinimo |

Group under financial classification

Syllabus

| №. | Sections and themes | Responsible lecturer |
|---|---|---|
| 1. | Introduction to statistic | |
| 2. | Population and sample. Normal distribution | |
| 3. | Descriptive, inferential and correlation analysis. | |
| 4. | SPSS datasheet | |
| 5. | Descriptive statistic | |
| 6. | Creating new variables and recoding variables | |
| 7. | Creating and editing graphics | |
| 8. | Statistics project, consultation | |
| 9. | Assessing the normality of the data distribution | |
| 10. | Cross tabulation and chi square | |
| 11. | Independent samples t test | |
| 12. | One-factor analysis of variance | |
| 13. | Mann Whitney U ir Kruskal Wallis tests | |
| 14. | Comparative statistics for small independent samples | |
| 15. | Related samples t test and Wilcoxon test | |
| 16. | Correlation | |

| №. | Sections and themes | Responsible lecturer |
|---|---|---|
| 17. | Regression analysis | |
| 18. | Effect size | |
| 19. | Solving statistical problems | |

Evaluation procedure of knowledge and abilities:

References

| №. | Title | Edition in Lithuanian Sports University library | | In Lithuanian Sports University bookstore | Number of ex. in the methodical cabinet of the depart. |
|---|---|---|---|---|---|
| | | Pressmark | Number of exemplars | | |
| 1. | Alan Bryman, Duncan Cramer (2008). Quantitative Data Analysis with SPSS 14, 15 and 16. Routledge: Taylor Francis. | 004 Br205 | 1 | No | |
| 2. | George, D., Mallery, P. (2022). IBM SPSS statistics 27 step by step: a simple guide and reference, 17th ed. New York, NY: Routledge, Taylor & Francis. | 004.9:31 | 1 | No | |
| 3. | Hans-Vaughn, D.L, Lomax, R.G. (2020a). Statistical concepts: a first course. Routledge, Taylor & Francis Group. | | | No | |
| 4. | Hans-Vaughn, D.L, Lomax, R.G. (2020b). Statistical concepts: a second course, 5th ed. Routledge, Taylor & Francis Group. | | | No | |
| 5. | Hoffman, J.I.E. (2019). Basic biostatistics for medical and biomedical practitioners, 2nd ed. Elsevier Inc. | | | No | |
| 6. | Janot, J.M., Beltz, N.M. (2023). Laboratory Assessment and Exercise Prescription. Champaign, IL: Human Kinetics. | | | No | |
| 7. | Mood, D.P., Morrow, J.R.Jr., McQueen, M.B. (2020). Introduction to Statistics in Human Performance Using SPSS and R, 2nd ed. New York, NY: Routledge, Taylor & Francis. | | | No | |
| 8. | Morrow, J.R., Jr., Mood, D.P., Zhu, W., Kang, M. (2022). Measurement and evaluation in human performance, 6th ed. Champaign, IL: Human Kinetics. | | | No | |
| 9. | Thomas, J.R., Martin, P.E., Etnier, J.L., Silverman, S.J. (2023). Research methods in physical activity, 8th ed. Champaign, IL: Human Kinetics. | 796.01:001.891 | 2 | No | |
| 10. | Weir, J.P., Vincent, W.J. (2021). Statistics in kinesiology, 5th ed. Champaign, IL: Human Kinetics. | 612.766:31 | 1 | No | |
| 11. | Willard,C.A. (2020). Statistical Methods: An Introduction to Basic Statistical Concepts and Analysis, 2nd ed. Routledge, Taylor & Francis Group. | | | No | |

Additional literature

| №. | Title |
|---|---|
| 1. | Bacevičienė, M. [@miglebac] (n.d.). YouTube. https://www.youtube.com/@miglebac |
| 2. | Bekešienė, S. (2015). Duomenų analizės SPSS pagrindai: mokomoji knyga. Vilnius, Generolo Jono Žemaičio karo akademija. |

| №. | Title |
|---|---|
| 3. | Čekanavičius, V., Murauskas, G. (2014). Taikomoji regresinė analizė socialiniuose moksluose. Vilniaus universiteto leidykla. |
| 4. | Field, A. (2018). Discovering statistics using IBM SPSS Statistics, 5th ed. London: SAGE publications Ltd. |
| 5. | Ghasemi, A. and Zahediasl, S. (2012). Normality Tests for Statistical Analysis: A Guide for Non-Statisticians. Int J Endocrinol Metab, 10(2):486-489. DOI: 10.5812/ijem.3505. |
| 6. | Morgan, C.J. (2017). Use of proper statistical techniques for research studies with small samples. Am J Physiol Lung Cell Mol Physiol. 313: L873–L877, DOI:10.1152/ajplung.00238.2017. |
| 7. | O'Donoghue, P. (2012). Statistics for Sport and Exercise Studies: an introduction. Routledge, Taylor & Francis. |
| 8. | Pett, M.A. (2006). Nonparametric statistics for health care research: statistics for small samples and unusual distributions, 2nd ed. Sage Publications, Inc. |
| 9. | Pukėnas, K. (2011). Kokybinių duomenų analizė SPSS programa: studijų knyga. Kaunas: LKKA |
| 10. | Research HUB (2019). Measurement Scales. Choice of Appropriate Graphs and Statistics [YouTube chanel]. Retrieved from: https://youtu.be/H-FwMJCPHpk |
| 11. | Vaitkevičius, R. ir Saudargienė, A. (2006). Statistika su SPSS psichologiniuose tyrimuose. VUD leidykla. |
| 12. | Veal, A.J., Darcy, S. (2014). Research Methods in Sport Studies and Sport Management: A Practical Guide. Routledge, Taylor & Francis Group. |


Coordinating lecturer

| Position | Degree, surname, name | Schedule №. |
|---|---|---|
| | | |

Subdivision

| Entitlement | Code |
|---|---|
| Department of Physical and Social Education | 1006 |

**Study module teaching form №.** 1

| Semester | | Mode of studies | Structure | | | | Total hours | Credits |
|---|---|---|---|---|---|---|---|---|
| | | | Theory | Seminars | Lab Works | Ind. work | | |
| A | S | D | 3 | 27 | 0 | 100 | 130 | 5 |

Languages of instruction:

| Lithuanian | L | English | E | Russian | R | French | F | German | G | Other | Oth. |
|---|---|---|---|---|---|---|---|---|---|---|---|

Plan of in-class hours

| №. of Themes | Academic hours | | | №. of Themes | Academic hours | | |
|---|---|---|---|---|---|---|---|
| | Theory | Seminars | Lab Works | | Theory | Seminars | Lab Works |
| 1. | 1 | 0 | 0 | 11. | 0 | 1 | 0 |
| 2. | 1 | 0 | 0 | 12. | 0 | 1 | 0 |
| 3. | 1 | 0 | 0 | 13. | 0 | 1 | 0 |
| 4. | 0 | 1 | 0 | 14. | 0 | 1 | 0 |
| 5. | 0 | 2 | 0 | 15. | 0 | 1 | 0 |
| 6. | 0 | 1 | 0 | 16. | 0 | 1 | 0 |
| 7. | 0 | 2 | 0 | 17. | 0 | 1 | 0 |
| 8. | 0 | 2 | 0 | 18. | 0 | 1 | 0 |
| 9. | 0 | 2 | 0 | 19. | 0 | 8 | 0 |
| 10. | 0 | 1 | 0 | | | | |
| | | | | Total: | 3 | 27 | 0 |

Schedule of individual work tasks and their influence on final grade

| | №. of syllabus | Total hours | Influence on grade, % | Week of presentment of task (*) and reporting (o) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17-20 |
| Test | 1-5 | 25 | 25 | * | | 0 | | | | | | | | | | | | | | |
| Project report | 5-16 | 35 | 35 | | * | | | | | 0 | | | | | | | | | | |
| Control work | 17-19 | 40 | 40 | | | * | | | | | 0 | | | | | | | | | |
| Total: | - | 100 | 100 | | | | | | | | | | | | | | | | | |

**Study module teaching form №.** 2

| Semester | | Mode of studies | Structure | | | | Total hours | Credits |
|---|---|---|---|---|---|---|---|---|
| | | | Theory | Seminars | Lab Works | Ind. work | | |
| A | S | N | 3 | 27 | 0 | 100 | 130 | 5 |

Languages of instruction:

| Lithuanian | L | English | E | Russian | R | French | F | German | G | Other | Oth. |
|---|---|---|---|---|---|---|---|---|---|---|---|

Plan of in-class hours

| №. of Themes | Academic hours | | | №. of Themes | Academic hours | | |
|---|---|---|---|---|---|---|---|
| | Theory | Seminars | Lab Works | | Theory | Seminars | Lab Works |
| 1. | 1 | 0 | 0 | 11. | 0 | 1 | 0 |
| 2. | 1 | 0 | 0 | 12. | 0 | 1 | 0 |
| 3. | 1 | 0 | 0 | 13. | 0 | 1 | 0 |
| 4. | 0 | 1 | 0 | 14. | 0 | 1 | 0 |
| 5. | 0 | 2 | 0 | 15. | 0 | 1 | 0 |
| 6. | 0 | 1 | 0 | 16. | 0 | 1 | 0 |
| 7. | 0 | 2 | 0 | 17. | 0 | 1 | 0 |
| 8. | 0 | 2 | 0 | 18. | 0 | 1 | 0 |
| 9. | 0 | 2 | 0 | 19. | 0 | 8 | 0 |
| 10. | 0 | 1 | 0 | | | | |
| | | | | Total: | 3 | 27 | 0 |

Schedule of individual work tasks and their influence on final grade

| | №. of syllabus | Total hours | Influence on grade, % | Week of presentment of task (*) and reporting (o) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17-20 |
| Test | 1-5 | 25 | 25 | * | | o | | | | | | | | | | | | | | |
| Project report | 5-16 | 35 | 35 | | * | | | | | o | | | | | | | | | | |
| Control work | 17-19 | 40 | 40 | | | * | | | | | o | | | | | | | | | |
| Total: | - | 100 | 100 | | | | | | | | | | | | | | | | | |

**Study module teaching form №.** 3

| Semester | | Mode of studies | Structure | | | | Total hours | Credits |
|---|---|---|---|---|---|---|---|---|
| | | | Theory | Seminars | Lab Works | Ind. work | | |
| A | S | D | 3 | 27 | 0 | 100 | 130 | 5 |

Languages of instruction:

| Lithuanian | L | English | E | Russian | R | French | F | German | G | Other | Oth. |
|---|---|---|---|---|---|---|---|---|---|---|---|

Plan of in-class hours

| №. of Themes | Academic hours | | | №. of Themes | Academic hours | | |
|---|---|---|---|---|---|---|---|
| | Theory | Seminars | Lab Works | | Theory | Seminars | Lab Works |
| | | | | Total: | 0 | 0 | 0 |

Schedule of individual work tasks and their influence on final grade

| | №. of syllabus | Total hours | Influence on grade, % | Week of presentment of task (*) and reporting (o) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17-20 |
| Test | 1-5 | 25 | 25 | * | | o | | | | | | | | | | | | | | |
| Project report | 5-16 | 35 | 35 | | * | | | | | o | | | | | | | | | | |
| Control work | 17-19 | 40 | 40 | | | * | | | | | o | | | | | | | | | |
| Total: | - | 100 | 100 | | | | | | | | | | | | | | | | | |

**Study module teaching form №.** 4

| Semester | | Mode of studies | Structure | | | | Total hours | Credits |
|---|---|---|---|---|---|---|---|---|
| | | | Theory | Seminars | Lab Works | Ind. work | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| A | S | N | 0 | 0 | 0 | 130 | 130 | 5 |

Languages of instruction:

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lithuanian | L | English | E | Russian | R | French | F | German | G | Other | Oth. |

Plan of in-class hours

| №. of Themes | Academic hours | | | №. of Themes | Academic hours | | |
|---|---|---|---|---|---|---|---|
| | Theory | Seminars | Lab Works | | Theory | Seminars | Lab Works |
| | | | | Total: | 0 | 0 | 0 |

Schedule of individual work tasks and their influence on final grade

| | №. of syllabus | Total hours | Influence on grade, % | Week of presentment of task (*) and reporting (o) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17-20 |
| Total: | - | 0 | 0 | | | | | | | | | | | | | | | | |