Appendix No. 1.5 to the Resolution No. 7/2023

of the Rector of the University of Rzeszów

**SYLLABUS**

**regarding the qualification cycle FROM 2024/2025 TO 2027/2028**

**Academic year 2024/2025**

1. Basic Course/Module Information

|  |  |
| --- | --- |
| Course/Module title | *Basics of data analysis* |
| Course/Module code \* |  |
| Faculty (name of the unit offering the field of study) | *College of Natural Sciences* |
| Name of the unit running the course | *College of Natural Sciences* |
| Field of study | Logistics in the agri-food sector |
| Qualification level | First-cycle studies |
| Profile | *General academic* |
| Study mode | *stationary* |
| Year and semester of studies | *Year II, semester 1* |
| Course type | *basic* |
| Language of instruction | English |
| Coordinator | Agnieszka Podolak, PhD |
| Course instructor | Agnieszka Podolak, PhD |

\* - as agreed at the faculty

1.1.Learning format – number of hours and ECTS credits

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Semester  (n0.) | Lectures | Classes | Laboratories | Seminars | Practical classes | Internships | others | **ECTS credits** |
| 3 |  |  | 30 |  |  |  |  | 5 |

1.2. Course delivery methods

X conducted in a traditional way

- involving distance education methods and techniques

1.3. Course/Module assessment (exam, pass with a grade, pass without a grade)

Laboratories: Pass with grade

2. Prerequisites

|  |
| --- |
| Knowledge and skills in the basics of mathematics and MS Excel |

3. Objectives, Learning Outcomes, Course Content, and Instructional Methods

3.1. Course/Module objectives

|  |  |
| --- | --- |
| O1 | Familiarization with basic statistical concepts and calculations, as well as planning and performing statistical analyses. |
| O2 | Developing the ability to properly use statistical tools. |
| O3 | Preparing students to use computer statistical programs and perform independent calculations and analyses. |

3.2. Course/Module Learning Outcomes (to be completed by the coordinator)

|  |  |  |
| --- | --- | --- |
| Learning Outcome | The description of the learning outcome  defined for the course/module | Relation to the degree programme outcomes |
| LO\_01 | knows and understands at an advanced level selected statistical concepts and issues necessary to properly perform analyzes and statistical inference | K\_W01 |
| LO\_02 | knows and understands the market research methodology and individual research stages in the field of logistics in the agri-food sector | K\_W02 |
| LO\_03 | is able to select appropriate statistical methods necessary to solve complex and unusual problems as well as properly plan, perform, interpret and present the obtained results of research tasks along with conclusions in the field of logistics in the agri-food sector | K\_U01  K\_U02 |
| LO\_04 | is able to plan and organize effective own and team work and strives for self-development through the ability to learn throughout life | K\_U09 |
| LO\_05 | is ready to critically evaluate the acquired knowledge and information obtained in dealing with statistical challenges related to logistics in the agri-food sector | K\_K01 |

**3.3. Course content (to be completed by the coordinator)**

1. Laboratories

|  |
| --- |
| Content outline |
| Variables and their types. Elements of descriptive statistics. Position and dispersion measures. |
| The use of computer programs in statistical analyses. |
| Normal distribution – W. Shapiro-Wilk test, homogeneity of variances – Brown-Forshyth test. |
| Tests for two independent and dependent samples - different types of Student's T test. |
| Analysis of variance (ANOVA) and Kruskal-Wallis test, post-hoc tests. |
| Pearson and Spearman correlation, linear regression analysis. |
| Graphical presentation of the results of statistical analyses. |

3.4. Methods of Instruction

Laboratories: performing calculations and tasks, selecting and performing analyzes using the Statistica program, group work, discussion

4. Assessment techniques and criteria

4.1 Methods of evaluating learning outcomes

|  |  |  |
| --- | --- | --- |
| Learning outcome | Methods of assessment of learning outcomes (e.g. test, oral exam, written exam, project, report, observation during classes) | Learning format (lectures, classes,…) |
| LO-01 | colloquium, verification of the completion of tasks and analyses, observation during classes | lab. |
| LO-o2 | colloquium, verification of the completion of tasks and analyses, observation during classes | lab. |
| LO\_03 | colloquium, verification of the completion of tasks and analyses, observation during classes | lab. |
| LO\_04 | colloquium, verification of the completion of tasks and analyses, observation during classes | lab. |
| LO\_05 | observation during classes | lab. |

4.2 Course assessment criteria

|  |
| --- |
| Laboratories: assessment based on tests and observations during classes consisting in verification of correct statistical inference when performing tasks and analyses. Elements and weights affecting the final grade in the course: lecture (test) 45%, exercises: test 30%, correct statistical inference when performing tasks and calculations 25%. The condition for passing the course is achieving all the assumed learning outcomes. |

5. Total student workload needed to achieve the intended learning outcomes

– number of hours and ECTS credits

|  |  |
| --- | --- |
| Activity | Number of hours |
| Course hours | 30 |
| Other contact hours involving the teacher (consultation hours, examinations) | 4 |
| Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.) | 91 |
| Total number of hours | 125 |
| Total number of ECTS credits | 5 |

\* One ECTS point corresponds to 25-30 hours of total student workload

6. Internships related to the course/module

|  |  |
| --- | --- |
| Number of hours | *-* |
| Internship regulations and procedures | *-* |

7. Instructional materials

|  |
| --- |
| Compulsory literature:  Stanisz A. 2007. Przystępny kurs statystyki z zastosowaniem STATISTICA PL na przykładach z medycyny. T. 1-3. Wyd. StatSoft Polska, Kraków.  Rabiej M. 2012. Statystyka z programem Statistica. Wyd. Helion, Gliwice.  Łomnicki A. 2012. Wprowadzenie do statystyki dla przyrodników. PWN, Warszawa.  Francuz P., Mackiewicz R. 2007. Liczby nie wiedzą, skąd pochodzą. Przewodnik po metodologii i statystyce nie tylko dla psychologów. Wyd. Katolickiego Uniwersytetu Lubelskiego. |
| Complementary literature:  [Przybylska-Mazur A.](https://opac.ur.edu.pl/integro/search/description?q=Przybylska-Mazur%2C+Agnieszka&index=15), [Sączewska-Piotrowska A.](https://opac.ur.edu.pl/integro/search/description?q=S%C4%85czewska-Piotrowska%2C+Anna&index=15), [Wolny-Dominiak A.](https://opac.ur.edu.pl/integro/search/description?q=Wolny-Dominiak%2C+Alicja&index=15), [Sojka E.](https://opac.ur.edu.pl/integro/search/description?q=Sojka%2C+El%C5%BCbieta&index=15) 2020. [Elementy statystyki i ekonometrii w analizach szeregów przestrzennych: podręcznik z przykładami i zadaniami](https://opac.ur.edu.pl/integro/site/recorddetail/263102161040?bibFilter=26). Wyd. Uniwersytetu Ekonomicznego, Katowice.  Podolak A., Kasprzyk K., Semenowicz K., Małek M. 2023. Kształcenie w zakresie podstaw statystyki na wybranych kierunkach studiów Uniwersytetu rzeszowskiego – analiza SWOT. Polish Journal for Sustainable Development, 24(1), 47-54.  Meissner W. 2013. Przewodnik do ćwiczeń z przedmiotu Metody statystyczne w biologii. Wyd. Uniwersytet Gdański.  Zieliński T. 1999. Jak pokochać statystykę czyli statystyka do poduszki. Wyd. Statsoft Polska, Kraków. |

Approved by the Head of the Department or an authorised person