Course: BASIC STATISTICS IN VETERINARY MEDICINE

UNIVERSITY OF ZAGREB
FACULTY OF VETERINARY MEDICINE
Heinzelova 55
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Division: Animal Production and Biotechnology
Organizational unit: Animal Breeding and Livestock Production
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Register No of the organisational unit: 61-09-2024-117
Zagreb, 03/09/2024

COURSE SYLLABUS

Course name: Basic Statistics in Veterinary Medicine

Academic year 2024/2025

Course leader: Associate Professor Maja Maurić Maljković, PhD
Deputy course leader: Associate Professor Sven Menčik, PhD

Teachers: Full Professor (permanent) Anamaria Ekert Kabalin, PhD
Associate Professor Maja Maurić Maljković, PhD
Associate Professor Sven Menčik, PhD
Associate teachers: postdoctoral assistant Ivan Vlahek, PhD and teaching assistant Aneta Piplica

First day of classes: 17/10/2024
Last day of classes: 21/11/2024

Activities - Basic Statistics in Veterinary Medicine (1/2)

Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
17/10/2024	10:00	11:30	p01 Introduction, variables	1E-1, 1E-2, 1E-3		1:30	Maurić Maljković M.	R_stočarstvo velika
18/10/2024	14:00	15:30	p02 Mean values, measures of dispersion	1E-1, 1E-2, 1E-3		1:30	Maurić Maljković M.	R_stočarstvo velika
21/10/2024	13:30	15:00	p03 Probability, distributions, sample/population	1E-1, 1E-2, 1E-3		1:30		R_stočarstvo velika
22/10/2024	8:15	9:45	v01 Data entry	1E-1, 1E-2		1:30	Nastavnici na predmetu	R_stočarstvo mala, R_stočarstvo velika
22/10/2024	15:15	16:45	p04 Probability, distributions, hypothesis testing	1E-1, 1E-2, 1E-3	e-learning	1:30	Menčik S.	R_stočarstvo velika
23/10/2024	8:15	9:45	v01 Data entry	1E-3		1:30	Nastavnici na predmetu	R_stočarstvo mala
25/10/2024	10:15	11:45	p05 Hypothesis tests, correlation, regression I	1E-1, 1E-2, 1E-3		1:30	Ekert Kabalin A.	P_kemija
28/10/2024	10:15	11:45	v02 Means and dispersion	1E-3		1:30	Nastavnici na predmetu	R_stočarstvo mala
28/10/2024	12:00	13:30	v02 Means and dispersion	1E-1, 1E-2		1:30	Nastavnici na predmetu	R_stočarstvo mala, R_stočarstvo velika
29/10/2024	10:00	11:30	v03 Kolmogorov-Smirnov test	1E-1, 1E-2		1:30	Nastavnici na predmetu	R_stočarstvo mala, R_stočarstvo velika
29/10/2024	13:30	15:00	v03 Kolmogorov-Smirnov test	1E-3		1:30	Nastavnici na predmetu	R_stočarstvo mala
04/11/2024	8:15	9:45	v04 Descriptive statistics - total	1E-1, 1E-2		1:30	Nastavnici na predmetu	R_stočarstvo mala, R_stočarstvo velika
04/11/2024	10:00	11:30	v04 Descriptive statistics - total	1E-3		1:30	Nastavnici na predmetu	R_stočarstvo mala

Activities - Basic Statistics in Veterinary Medicine (2/2)

Start Date	Start T	End Ti	Subject	Group	Note	Length	Instructor	Room
05/11/2024	10:30	12:00	v05 Parametric tests	1E-1, 1E-2		1:30	Nastavnici na predmetu	R_stočarstvo mala, R_stočarstvo velika
05/11/2024	12:15	13:45	v05 Parametric tests	1E-3		1:30	Nastavnici na predmetu	R_stočarstvo mala
05/11/2024	15:30	17:00	p06 Hypothesis tests, correlation, regression II	1E-1, 1E-2, 1E-3	e-learning	1:30	Menčik S.	P_fizika
07/11/2024	10:00	11:30	p07 Hypothesis testing in veterinary research	1E-1, 1E-2, 1E-3		1:30	Maurić Maljković M.	P_patologija
11/11/2024	11:45	13:15	v06 Non-parametric tests	1E-3		1:30	Nastavnici na predmetu	R_stočarstvo mala
12/11/2024	8:15	9:45	v06 Non-parametric tests	1E-1, 1E-2		1:30	Nastavnici na predmetu	R_stočarstvo mala, R_stočarstvo velika
19/11/2024	8:00	9:30	v07 Correlation, regression, models	1E-1, 1E-2		1:30	Nastavnici na predmetu	R_stočarstvo mala, R_stočarstvo velika
19/11/2024	10:00	11:30	v07 Correlation, regression, models	1E-3		1:30	Nastavnici na predmetu	R_stočarstvo mala
21/11/2024	10:15	11:45	v08 R, excel	1E-3		1:30	Nastavnici na predmetu	R_stočarstvo mala
21/11/2024	12:45	14:15	v08 R, excel	1E-1, 1E-2		1:30	Nastavnici na predmetu	R_stočarstvo mala, R_stočarstvo velika
Total: 23						**34:30**		

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STUDENT OBLIGATIONS

Lecture attendance	Attending lectures and e-learning: a total of 6 points (the lowest number of points that a student should gain from this element is 3 points)
Practicals attendance	Attendance exercises: a total of 12 points (the lowest number of points that a student should gain from this element is 8,4 points)
Active participation in practicals	Active participation in exercises (solving and interpreting tasks): a total of 10 points (the minimum number of credits a student should gain from this element is 5 points). During the term, students have to fulfil the given assignments in eight programme exercises regarding the input, analysis and saving data. Each successful exercise or task earns them 0,5 points. During the periods of the second (2nd) to the seventh (7th) exercise, the students will have to do a self-check exam based on five questions in the LMS System, according to the given exercise topic. Each successful self-check exercise with more than 50% of correct answers earns them 0,5 points. During oral examination revision periods, as well as after every finished exercise, students are allowed to interpret the given results and can get another extra point there. For the successful task completion and independent data analysis using Microsoft Excel students can earn another point. During the term students need to achieve a minimum of 5 points (different combinations in solving programme exercises, self-checks, oral results interpretations / oral exams). A maximum number of points here is 10.
Final exam	Final exam: a total of 40 points (the lowest number of points that a student should gain from this element is 24 points)
Examination requirements	Student requirements are defined in the Regulations on the Integrated Undergraduate and Graduate Study of Veterinary Medicine (2022). Given the above, the student must acquire a minimum number of points from all assessment elements in order to take the final exam. **Article 41:** a student can justifiably be absent from up to 50 % of the lectures; 30% of the seminars and 30 % of the exercises.

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GRADING AND EVALUATING STUDENT WORK

Continuous knowledge-checking (mid-terms)	During the course, four colloquia will be organised. Each of the colloquia carries 8 points, and the student should gain at least 50% (4 points). A total of 32 points is possible in this category. The minimum number of credits that a student should gain from this element is 20 points. Regular colloquia dates: 1st colloquia – 04/11/2024 2nd colloquia – 11/11/2024 and 12/11/2024 3rd colloquia – 19/11/2024 4th colloquia – 21/11/2024 Compensations: 02/12/2024 and 03/12/2024 30/01/2025 and 31/01/2025 13/02/2025 and 14/02/2025
Final exams (dates)	Final exam schedule for winter session 2024/2025: 17/12/2024 11/2/2025 21/2/2025
Form of final exam	written

LITERATURE

Obligatory literature	Petrie i Watson: Statistics for Veterinary and Animal Science. Blackwell Publishing, 3rd Edition, 2013.
Optional literature	Ennos, R: Statistical and Data Handling Skills in Biology. 3rd edition. Pearson, 2011 Manuals of statistical software (Statistica, Excel, R). Prepared written materials of lectures and exercises.

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OBJECTIVES AND LEARNING OUTCOMES

Course objectives	Adoption of facts about the significance of statistics for veterinary profession, getting theoretical and practical skills necessary for optimal planning and performing statistical observation, as well as data analysis and concluding about principles of events in veterinary medicine. Students will learn about different software system with the aim of achieving new skills related to different program environments during the statistical analysis.
Learning outcomes	Acquiring knowledge about the collection, processing and presentation of statistical data sets and their analysis and interpretation. Hypothesis, their evaluation and testing in veterinary medicine. Criteria for the selection of individual tests. Interdependence of characteristics and the possibility of their application in veterinary medicine After successful completion of the course the student will be able to: - identify the types of variables, - assess the results of basic statistical data processing and analysis - determine the normality of variables for the purpose of further analyses - select the test to verify the hypothesis in differently designed veterinary research - determine the correlation between two or more variables - solve statistical analysis in different programming environments

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GRADING SCHEME

Points	*Grade*
Up to 59	1 (F)
60-76	2 (D, E)
77-84	3 (C)
85-92	4 (B)
93-100	5 (A)

Course leader
Associate Professor Maja Maurić Maljković, PhD

Head of organizational unit:
Full Professor Anamaria Ekert Kabalin, PhD

Note: The course leader is required to submit a Course Syllabus to all teachers and associates pertaining to the Cours

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GRADING AND EVALUATION OF STUDENT WORK ON COURSES WITH LECTURES, SEMINARS and PRACTICALS

Type of activity	Minimum number of points	Maximum number of points
Lectures attendance	3	6
Seminar attendance	4	6
Practicals attendance	4	6
Active participation in seminars and practicals	5	10
Continuous knowledge checking (mid-terms)	20	32
Final exam	24	40
TOTAL	60	100

GRADING AND EVALUATION OF STUDENT WORK ON COURSES WITH LECTURES and SEMINARS

Type of activity	Minimum number of points	Maximum number of points
Lecture attendance	3	6
Practicals attendance	8	12
Active participation in practicals	5	10
Continuous knowledge checking (mid-terms)	20	32
Final exam	24	40
TOTAL	60	100

GRADING AND EVALUATION OF STUDENT WORK ON COURSES WITH SEMINARS and EXCERCISES

Type of activity	Minimum number of points	Maximum number of points
Seminar / practicals attendance	11	18
Active participation in seminars and practicals	5	10
Continuous knowledge checking (mid-terms)	20	32
Final exam	24	40
TOTAL	60	100