

Course:

BASIC STATISTICS IN VETERINARY MEDICINE

UNIVERSITY OF ZAGREB
FACULTY OF VETERINARY MEDICINE

Heinzelova 55

Tel. 01/2390224

Division: Animal Production and Biotechnology

Organizational unit: Animal Breeding and Livestock Production

E-mail of the course leader: mmauric@vef.unizg.hr

Register No of the organisational unit: 61-09-2022-124

Zagreb, 01/09/2023

COURSE SYLLABUS

Course name: Basic Statistics in Veterinary Medicine

Academic year 2023/2024

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

Teachers: Full Professor (permanent) Anamaria Ekert Kabalin, PhD
Full Professor (permanent) Velimir Sušić, 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: 10/10/2023

Last day of classes: 09/11/2023

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|---------------------------------|--------------------|------------|
| 170644 | REPUBLIKA HRVATSKA | |
| Veterinarski fakultet u Zagrebu | | |
| Primljeno: | 12.09.2023 | |
| Klasifikacijska oznaka | Org. jed. | |
| 605-03/23-04/28 | 251-61-32; | |
| Urudžbeni broj | Prilozi | Vrijednost |
| 251-61-09/146-23-26 | 0 | - |

Activities - Basic Statistics in Veterinary Medicine (1/3)

| Start Dat | Start Tim | End Time | Subject | Group | Instructor | Room | Length |
|------------|-----------|----------|--|------------------|------------------------|--|--------|
| 10/10/2023 | 11:15 | 12:45 | p01 Introduction, variables | 1E-1, 1E-2, 1E-3 | Mauric Maljkovic M. | V_mikrobiologija | 1:30 |
| 11/10/2023 | 11:15 | 12:45 | p02 Mean values, measures of dispersion | 1E-1, 1E-2, 1E-3 | Mauric Maljkovic M. | V_mikrobiologija | 1:30 |
| 12/10/2023 | 8:15 | 9:45 | p03 Probability, distributions, sample/population | 1E-1, 1E-2, 1E-3 | Sušić V. | R_stocarstvo velika | 1:30 |
| 13/10/2023 | 8:15 | 9:45 | v01 Data entry | 1E-1, 1E-2 | Nastavnici na predmetu | R_stocarstvo mala, R_stocarstvo velika | 1:30 |
| 13/10/2023 | 10:15 | 11:45 | v01 Data entry | 1E-3 | Nastavnici na predmetu | R_stocarstvo mala | 1:30 |
| 16/10/2023 | 8:15 | 9:45 | p04 Probability, distributions, hypothesis testing | 1E-1, 1E-2, 1E-3 | Mencik S. | V_mikrobiologija | 1:30 |
| 18/10/2023 | 8:15 | 9:45 | p05 Hypothesis tests, correlation, regression I | 1E-1, 1E-2, 1E-3 | Ekert Kabalin A. | V_mikrobiologija | 1:30 |
| 18/10/2023 | 10:15 | 11:45 | v02 Means and dispersion | 1E-1, 1E-2 | Nastavnici na predmetu | R_stocarstvo mala, R_stocarstvo velika | 1:30 |

Activities - Basic Statistics in Veterinary Medicine (2/3)

| Start Dat | Start Tim | End Time | Subject | Group | Instructor | Room | Length |
|------------|-----------|----------|--|------------------|------------------------|--|--------|
| 18/10/2023 | 13:20 | 14:50 | v02 Means and dispersion | 1E-3 | Nastavnici na predmetu | R_stocarstvo mala | 1:30 |
| 19/10/2023 | 8:15 | 9:45 | v03 Kolmogorov-Smirnov test | 1E-1, 1E-2 | Nastavnici na predmetu | R_stocarstvo mala, R_stocarstvo velika | 1:30 |
| 19/10/2023 | 10:15 | 11:45 | v03 Kolmogorov-Smirnov test | 1E-3 | Nastavnici na predmetu | R_stocarstvo mala | 1:30 |
| 20/10/2023 | 8:15 | 9:45 | v04 Descriptive statistics - total | 1E-1, 1E-2 | Nastavnici na predmetu | R_stocarstvo mala, R_stocarstvo velika | 1:30 |
| 20/10/2023 | 14:15 | 15:45 | v04 Descriptive statistics - total | 1E-3 | Nastavnici na predmetu | R_stocarstvo mala | 1:30 |
| 23/10/2023 | 8:15 | 9:45 | v05 Parametric tests | 1E-1, 1E-2 | Nastavnici na predmetu | R_stocarstvo mala, R_stocarstvo velika | 1:30 |
| 23/10/2023 | 12:15 | 13:45 | v05 Parametric tests | 1E-3 | Nastavnici na predmetu | R_stocarstvo mala | 1:30 |
| 24/10/2023 | 12:15 | 13:45 | p06 Hypothesis tests, correlation, regression II | 1E-1, 1E-2, 1E-3 | Mencik S. | P_fizika | 1:30 |

Activities - Basic Statistics in Veterinary Medicine (3/3)

| Start Dat | Start Tim | End Time | Subject | Group | Instructor | Room | Length |
|------------------|-----------|----------|---|------------------|------------------------|--|--------------|
| 25/10/2023 | 8:15 | 9:45 | p07 Hypothesis testing in veterinary research | 1E-1, 1E-2, 1E-3 | Mauric Maljkovic M. | P_patologija | 1:30 |
| 26/10/2023 | 8:15 | 9:45 | v06 Non-parametric tests | 1E-1, 1E-2 | Nastavnici na predmetu | R_stocarstvo mala, R_stocarstvo velika | 1:30 |
| 26/10/2023 | 10:15 | 11:45 | v06 Non-parametric tests | 1E-3 | Nastavnici na predmetu | R_stocarstvo mala | 1:30 |
| 06/11/2023 | 8:15 | 9:45 | v07 R, excel | 1E-1, 1E-2 | Nastavnici na predmetu | R_stocarstvo mala, R_stocarstvo velika | 1:30 |
| 06/11/2023 | 12:15 | 13:45 | v07 R, excel | 1E-3 | Nastavnici na predmetu | R_stocarstvo mala | 1:30 |
| 09/11/2023 | 8:15 | 9:45 | v08 Correlation, regression, models | 1E-1, 1E-2 | Nastavnici na predmetu | R_stocarstvo mala, R_stocarstvo velika | 1:30 |
| 09/11/2023 | 13:00 | 14:30 | v08 Correlation, regression, models | 1E-3 | Nastavnici na predmetu | R_stocarstvo mala | 1:30 |
| Total: 23 | | | | | | | 34:30 |

Course:

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STUDENT OBLIGATIONS

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|------------------------------------|--|
| 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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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: <ul style="list-style-type: none">- identify the types of variables,- interpret the results of basic statistical data processing and analysis,- determine the normality of variables,- select the test to verify the hypothesis,- determine the correlation between two or more variables- familiarize with programming environments for statistical analysis |

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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: 1 st colloquia – 20/10/2023 2 nd colloquia – 26/10/2023 3 rd colloquia – 06/11/2023 4 th colloquia – 09/11/2023 Compensations: 15/11/2023 and 16/11/2023 29/01/2024 and 30/01/2024 12/02/2024 and 13/02/2024 |
| Final exams (dates) | Final exam schedule for winter session 2023/2024: 4/12/2023 9/2/2024 21/2/2024 |
| Form of final exam | written |

LITERATURE

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|-----------------------|---|
| 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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GRADING SCHEME

| <i>Points</i> | <i>Grade</i> |
|---------------|--------------|
| 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

Course:

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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 EXERCISES

| 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 |