

Course descriptions

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COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Jessenius Faculty of Medicine in Martin	
Course ID: JLF/3-JZSA-003/22	Course title: Basics of statistic analyses
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Type, volume, methods and workload of the student - additional information Form of Study: in person Number of contact hours: 10 hours of lectures and 2 hours of practicals per week: per level/semester: 12 hours during one day	
Number of credits: 4	
Recommended semester:	
Educational level: III.	
Prerequisites:	
Course requirements: Active participation	
Learning outcomes: Refreshing of the basics of statistical data analysis and statistical inferences. To know how to test hypotheses for the population mean. To understand the limitations of the nonparametric tests. To be able to decide between using parametric or nonparametric tests for a particular data. To be able to explore data, summarize data and test hypothesis for population mean as well as for contingency tables in jamovi. Ability to interpret results of statistical data analysis.	
Class syllabus: Population, sample, generalization, statistical inferences. Software jamovi. EDA – exploratory data analysis, histogram, density plot, boxplot, swarmplot, violin plot, quantile-quantile plot with 95% confidence band, assessment of normality. Descriptive statistic for location and scale, robustness. SD vs SEM. Confidence interval for the population mean. Fisher Null Hypothesis Significance Testing. Motivation for p-value, evidential scale. Neyman-Pearson hypothesis testing. Tests for the population mean: one-sample t test, Welch test, two sample t test, two sample paired t test, illustrative case studies. Nonparametric tests (WMW test, one sample and paired Wilcoxon test) and their limitations, illustrative case studies. Contingency tables. Chi-squared test and Fisher test, illustrative case studies. Practical in jamovi – three case studies in test selection.	
Recommended literature: KIRKWOOD Betty and Jonathan STERNE. Essential Medical Statistics. Wiley-Blackwell, 2003. ISBN 0865428719 NAVARRO Danielle and David FOXCROFT. Learning statistics with jamovi: a tutorial for psychology students and other beginners. http://www.learnstatswithjamovi.com	
Languages necessary to complete the course:	

Slovak and English		
Notes:		
Past grade distribution		
Total number of evaluated students: 0		
ABS0	M	NEABS
0,0	0,0	0,0
Lecturers: doc. Mgr. Marián Grendár, PhD.		
Last change: 08.08.2023		
Approved by: doc. Ing. Jakub Míšek, PhD., doc. RNDr. Michal Šimera, PhD., prof. RNDr. Ivan Poliaček, PhD.		

STATE EXAM DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Jessenius Faculty of Medicine in Martin	
Course ID: JLF/3-LKB-005/22	Course title: Dissertation Defense
Number of credits: 30	
Educational level: III.	
Course requirements: - obtaining at least 210 credits (in a 4-year full-time and 5-year part-time study) - submission of an application for a state examination permit - defense of the dissertation no later than 4 months before the date of completion of the standard length of study - authorship or co-authorship of a doctoral student of at least three scientific papers in extenso in internationally recognized journals registered in databases, such as Web of Science, Medline or SCOPUS as a basic condition for accepting an application for permission to defend a dissertation; in at least one of these works, the doctoral student is the first author	
Learning outcomes: - the graduate of the field has mastered the principles and methodology of scientific work, from the ability to orient in the latest knowledge of the field, through scientific formulation of the problem, assessment of the ethical side of scientific work, planning and implementation of research, scientific processing of obtained data, their interpretation to their presentation, including in international fora, and possible proposals for their application in practice. - the graduate of the course Medical biophysics 2 can work independently scientifically and bring their own solutions to problems in the field. He/she can contribute to the development of this field through scientific and teaching work	
Class syllabus: - scientific research on a current problem in the field or a multidisciplinary problem with a focus on Medical biophysics - mastering the principles and methodology of scientific work in clinical research or experimental work, as well as the ethical and social aspects of scientific work up to the preparation of the text of a scientific publication in cooperation with the supervisor in in-form, especially in English - publishing and lecturing activities and active participation in scientific events - teaching activity (max. 4 hours per week / year = 208 hours / year = 104 hours / semester) only for full-time form	
State exam syllabus:	
Recommended literature: Akay M, :Wiley-IEEE Press,London, 2000. 346p. BronzinoJ.D (ed) CRC&IEEE Press,Boca Raton2000, 346p. Delchar T.A.Chapman &Hall, London, 1997, 360p. Ganong W.F. část 1 a2, H&H, Jinočany 1995 Hoppe et al., Springer-Verlag, New York, Tokyo, 1983, 941p. Hrazdira I., Mornstein V., Neptun, Brno, 2001, 381s Jakuš J.: UK Bratislava, 1999, 66s. Jakus J., Tomori Z., Stránsky A.: Wist, Martin, 2004, 333p. Korpas.J, Paintal A.S. Anand A. et al.:Ane Books India, New Delhi, 2007, 316p. Juga L.:Slovak Academy Press. Bratislava 2000, 1029s. Malmivuo J&Plonsey Oxford Univ.Press.New York,	

1995, 471p.. Navrátil L., Rosina J. a kol., Grada, Praha, 2005, 524s. Rontó G. & Tarján I. Akadémiai kiadó, Budapest 1999, 447p. , 681s. Stamford et al. Oxford, Univ Press, London, 1992.. Schneck D.J.&Bronzino J.D. CRC Press, Boca Raton, 2003, 300p. Silbernagel S. & Desopopoulos A.: Grada, Praha 2004, 448s. Svatoš J.: ČVUT PrAHA, 1995, 204S. Delchar T.A.: Chapman & Hall, Univ of Warwick, United Kindom,London-Madras, 1997, 360p. Javorka K a kol.: Osveta Martin, 2008, 204s. Javorka K a kol. Lekárska fyziológia, Osveta Martin, 2014, 770s. Doboš et al.: Edis, ŽU- Žilina, 2002, 312s. Davidovits P.: Elsevier, Amsterdam-Tokyo, 2013, 331p. Roosli M et al: CRC Press,Boca Raton-New York,2014.355p. Egelman et al.: Elsevier, Oxford Univ.,Vol 8, 2012,288p. Marko S Markov et al.: CRC Press, Boca Raton-New York, 2015, 460p

Languages necessary to complete the course:

Slovak language / English language

Last change: 21.08.2023

Approved by: doc. Ing. Jakub Míšek, PhD., doc. RNDr. Michal Šimera, PhD., prof. RNDr. Ivan Poliaček, PhD.

STATE EXAM DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Jessenius Faculty of Medicine in Martin	
Course ID: JLF/3-LKB-004/22	Course title: Dissertation Examination
Number of credits: 20	
Educational level: III.	
Course requirements: - obtaining at least 60 credits, including 20 credits for mandatory courses of the Methodology of Scientific Work, Introductory of Statistical Analysis and Examination in a Foreign / World Language as a condition for granting consent to take a dissertation exam (DE) - registration for DE within 24 months from the beginning of the study (in a 4-year full-time study) - registration for DE within 30 months from the beginning of the study (in a 5-year external study) - elaboration of a written part for the dissertation exam - successful answering of 2 theoretical questions from the field of Medical biophysics and presentation of the basic theses of the written part of the dissertation exam	
Learning outcomes: the graduate of the subject Medical Biophysics 1 has deep theoretical knowledge based on the current state of scientific knowledge in the field, masters the principles and methodology of scientific work and is able to perform professional and scientific activities in the field of experimental medical biophysics - has the ability to work independently and bring their own solutions to problems in the field and in related fields, especially in the profession of researcher and university teacher	
Class syllabus: study of the latest knowledge of Medical Biophysics, in the compulsory subject: General medical biophysics (cell and cell membrane biophysics, active and passive transport systems, electrical processes in the cell, synaptic and nerve transmission, thermodynamics, thermoregulation, muscle and nerve tissue activity, hydrodynamics, energetics cardiac activity, biophysics of respiration, ecobiophysics, climatic factors, radioactivity and ionizing radiation, light and non-ionizing radiation sound and bioacoustics, basic diagnostic and therapeutic methods in medicine., bioimaging of tissues and organs, biostatistics, modeling and PC simulation. of 12 elective courses according to the topic (biochemistry in medical biophysics, cell communications, photobiophysics and phototherapy, neurobiophysics, electrobiophysics, neurotechnology, biomechanics of bones, muscles, joints, blood and lymph movement, locomotion, interactions of electromagnetic radiation, electromagnetic radiation interactions, - gaining a panoramic view of the subject in the context of using the latest theoretical knowledge of medicine, science and technology, genetic engineering, micro- and nanotechnology - deep theoretical knowledge and their creative application to the conditions of human and veterinary medicine - methodological and ethical bases of research work, principles of good laboratory work - basics of statistical processing of obtained experimental data - teaching activity (max. 4 hours per week / year = 208 hours / year = 104 hours / semester) only for full-time form	

State exam syllabus:
Recommended literature: Akay M, :Wiley-IEEE Press,London, 2000. 346p. BronzinoJ.D (ed) CRC&IEEE Press,Boca Raton2000, 346p. Delchar T.A.Chapman &Hall, London, 1997, 360p. Ganong W.F. časť 1 a2, H&H, Jinočany 1995 Hoppe et al., Springer-Verlag, New York, Tokyo, 1983, 941p. Hrazdira I., Mornstein V., Neptun, Brno, 2001, 381s.Jakuš J.: UK Bratislava, 1999, 66s. Jakus J., Tomori Z., Stránsky A.: Wist, Martin, 2004, 333p. Korpas.J, Paintal A.S. Anand A. et al.:Ane Books India, New Delhi, 2007, 316p. Juga L.:Slovak Academy Press. Bratislava 2000, 1029s. Malmivuo J&Plonsey Oxford Univ.Press.New York, 1995, 471p.. Navrátil L., Rosina J. a kol., Grada, Praha, 2005, 524s. Rontó G. & Tarján I. Akadémiai Kiadó, Budapest 1999, 447p. Stamford et al. Oxford, Univ Press, London, 1992.. Schneck D.J.&Bronzino J.D. CRC Press, Boca Raton, 2003, 300p. Silbernagel S. & Desopopoulos A.: Grada, Praha 2004, 448s. Svatoš J.: ČVUT Praha, 1995, 204S. Delchar T.A.: Chapman & Hall, Univ of Warwick, United Kindom,London-Madras, 1997, 360p. Javorka K a kol.: Osveta Martin, 2008, 204s. Javorka K a kol. Lekárska fyziológia, Osveta Martin, 2014, 770s. Doboš et al.: Edis, ŽU- Žilina, 2002, 312s. Davidovits P.: Elsevier, Amsterdam-Tokyo, 2013, 331p. Roosli M et al: CRC Press,Boca Raton-New York,2014.355p. Egelman et al.: Elsevier, Oxford Univ.,Vol 8, 2012,288p. Marko S Markov et al.: CRC Press, Boca Raton-New York, 2015, 460p.
Languages necessary to complete the course: Slovak language / English language
Last change: 10.08.2023
Approved by: doc. Ing. Jakub Míšek, PhD., doc. RNDr. Michal Šimera, PhD., prof. RNDr. Ivan Poliaček, PhD.

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Jessenius Faculty of Medicine in Martin	
Course ID: JLF/3-JCJ-002/22	Course title: Foreign Language
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Type, volume, methods and workload of the student - additional information Form of teaching: full-time / part-time Type, scope, and method of educational activities: - self-study (course) in the range of 1-2 semesters depending on the basic knowledge of English / German - consultations before the exam in the range of about 4-6 hours - methods: self-study / full-time method / online consultation / e-mail contact Recommended range of teaching (in hours): Weekly: During the study period Study method: full - time, part - time, part - time, combined	
Number of credits: 10	
Recommended semester:	
Educational level: III.	
Prerequisites:	
Course requirements: - command of a foreign language at the level of min. B2 - passing the examination and, if necessary, 2-3 consultations before the examination - passing a foreign language exam	
Learning outcomes: The graduate of the course will acquire the language skills needed to obtain scientific information from foreign sources and present research results in foreign journals and at international conferences. They will learn about the possibilities of studying abroad, health care systems in English-speaking countries, ways of language education, possibilities of using IT in language education, but also about variants of the English language used in global communication.	
Class syllabus: English language: 1. Education and Education Systems 2. Language Education 3. Intercultural Communication 4. Study Abroad 5. Health Services 6. Differences between British and American English 7. Aspects of English Medical Language 8. Speaking at Medical Meetings: Presentation of a Paper	

9. Writing a Scientific Research Article 10. Academic Skills in Medical English and Information Technology German language: 1. Bildung und Bildungssysteme 2. Sprachunterricht 3. Interkulturelle Kommunikation 4. Im Ausland studieren 5. Gesundheitsdienste 6. Unterschiede zwischen britischem und amerikanischem Englisch 7. Aspekte der englischen Medizinsprache 8. Reden bei medizinischen Tagungen: Präsentation eines Themas 9. Einen wissenschaftlichen Forschungsartikel schreiben 10. Akademische Fähigkeiten in medizinischem Englisch und Informationstechnologien		
Recommended literature: Barnau, A., Berešová, J., Džuganová, B. (2021) Academic Skills in Medical English. A Guide for Postgraduate Students. Martin: Vydavateľstvo Turany. A monograph or professional textbook from the field that the postgraduate student studies according to the supervisor's recommendation.		
Languages necessary to complete the course: English language / German language		
Notes: Consultations and exams are provided individually during both semesters. The recommended and reserved time for personal meetings and exams is Friday.		
Past grade distribution Total number of evaluated students: 0		
ABS0	M	NEABS
0,0	0,0	0,0
Lecturers: doc. Mgr. Erika Juríková, PhD., PhDr. Božena Džuganová, PhD., Mgr. Anna Barnau, PhD., Mgr. Nora Malinovská, PhD., Mgr. Desana Kiselová		
Last change: 08.08.2023		
Approved by: doc. Ing. Jakub Míšek, PhD., doc. RNDr. Michal Šimera, PhD., prof. RNDr. Ivan Poliaček, PhD.		

COURSE DESCRIPTION

Academic year: 2025/2026	
University: Comenius University Bratislava	
Faculty: Jessenius Faculty of Medicine in Martin	
Course ID: JLF/3-JMVP-001/22	Course title: Methodology of Science Research
Educational activities: Type of activities: Number of hours: per week: per level/semester: Form of the course: on-site learning, distance learning	
Type, volume, methods and workload of the student - additional information Lectures and seminar in the range of 16 teaching hours. Form of teaching: full-time / part-time Recommended range of instruction (in hours): 16 hours Weekly: During the study period: Study method: Presence	
Number of credits: 10	
Recommended semester:	
Educational level: III.	
Prerequisites:	
Course requirements: Active participation in a 2-day course Methodology of Scientific Work	
Learning outcomes: By completing the course, the doctoral student acquires basic information - theoretical knowledge and practical experience in the field of methodology of scientific work, including current legislation necessary for the organization and successful completion of doctoral studies, grant opportunities, methodology of science and principles of evidence-based medicine, as well as legal and ethical aspects of scientific work in the biomedical sciences, public health and nursing. He also acquires basic knowledge and practical skills in the field of statistical methods and presentation of the results of scientific work.	
Class syllabus: - Current state of doctoral studies in medical and non-medical health sciences in the Slovak Republic - Grant system used to support science in Slovakia and the European Union, general principles of preparation of scientific projects - The "motivation" factor in biomedical research and the life of a young researcher - Ethical aspects of biomedical research - Who's a good doctor? About science and art in medicine - Basics and practical demonstrations of the use of statistical methods used in biomedical sciences, public health, and nursing - Preparations and presentations of the results of scientific work (lecture, publication, written work for the dissertation exam and dissertation) - Legal aspects of scientific work in biomedical sciences, public health and nursing - Types of scientific methods	

- Evidence Based Medicine, Plagiarism and publishing fraud - Effective use of external resources, citation managers - Bibliometric and citation databases (WoS / SCOPUS / CREPC / EviPUB) and publication literacy		
Recommended literature: Hanáček, J., Javorka, K., Čalkovská, A. a kol.: Základy vedeckovýskumnej práce : príručka pre doktorandov a mladých vedeckých pracovníkov. - 1. vyd. - Martin: Osveta, 2008. - 216 s. Čalkovská, A. Bóriková, I., Danko, J. a kol.: Vedecká príprava : učebnica pre študentov medicíny. - 1. vyd. - Martin : Osveta, 2010. - 220 s. ISBN 978-80-8063-328-8. Vyšlo aj v angl. mutácii - Martin : Osveta, 2011.		
Languages necessary to complete the course: English		
Notes:		
Past grade distribution Total number of evaluated students: 0		
ABS0	M	NEABS
0,0	0,0	0,0
Lecturers: prof. MUDr. Tibor Baška, PhD., doc. MUDr. Ing. Peter Celec, DrSc., doc. Mgr. Juraj Čáp, PhD., Mgr. Jana Ilavská, PhD., prof. MUDr. Michal Javorka, PhD., prof. RNDr. Ján Lehotský, DrSc., prof. MUDr. Dušan Meško, PhD., prof. MUDr. František Novomeský, PhD., prof. MUDr. Jana Plevková, PhD., Ing. Ján Strnádel, PhD., doc. MUDr. Martin Janík, PhD., doc. Mgr. Marián Grendár, PhD., prof. MUDr. Ľubomír Straka, PhD.		
Last change: 05.11.2025		
Approved by: doc. Ing. Jakub Míšek, PhD., doc. RNDr. Michal Šimera, PhD., prof. RNDr. Ivan Poliaček, PhD.		