



LITHUANIAN SPORTS UNIVERSITY

STUDY MODULE PROGRAMME (SMP)

Module Code	S	274	M	042	Accredited until				Renewal date		
	Branch of Science		Progr.	Registr. №.							

Entitlement

Research Methods and Empirical Observation

Prerequisites

Research methodology module for bachelor studies, bachelor studies

Course (module) Learning Outcomes

№.	Learning Outcomes	Teaching / Learning Methods	Assessment Methods
1	Select, design and evaluation appropriate methodologies relevant to the collection of data in areas relevant to performance analysis	Formal lecture, Literature analysis, Seminar	Essay, Reporting for practice work
2	Understand research problems approached from the perspective of the sport activities and organism complexity	Formal lecture, Seminar	Test
3	Control a range of assessment tools; such as strain gauges, force plate, motion analysis, EMG, instrumented insole pressure plants, accelerometers; Spirometry; for the assessment of human performance;	Exercise classes, Formal lecture, Seminar	Laboratory examination, Reporting for practice work
4	Choose and apply appropriate statistical techniques	Formal lecture, Practical exercises (tasks)	Reporting for practice work
5	Will be able to prepare a scientific report.	Formal lecture, Literature analysis	Individual work

Main aim

This module aims to provide a philosophically, ethically and methodologically sound framework for research and applied work; define and explain the research paradigms involved in performance analysis, human movement analysis and notational analysis; present principles surrounding the design of the research that are specific to these fields; develop further students experimental assessment toolkit; increase students capacity to study, interpret and analyse research projects in the most important lines of research, within their relevant field.

Summary

he module covers topics related to the modern concept of science and ethical problems of scientific research. Scientific literature analyses. Research problems approached from the perspective of the sport activities and organism complexity, modern technologies in the sport performance research related with determinants of physical performance and individualization. Research types, data collection tools, relation between design and statistical techniques applied. Interpretation of results and scientific conclusion. Reporting research data.

Level of module

Level of programme		Subject group (under the regulation of the area)	Subject level
Cycle	Type		
Second	Master	Bendrojo universitetinio lavinimo	

Group under financial classification

Syllabus

№.	Sections and themes	Responsible lecturer
1.	The conception of contemporary modern science. Ethics in science	

№.	Sections and themes	Responsible lecturer
2.	Research problems approached from the perspective of the sport activities and organism complexity	
3.	Modern technologies in the sport performance research related with determinants of physical performance and individualization	
4.	Testing of aerobic capacity in exercise physiology labg	
5.	Prescription of aerobic training intensity using physiological criteria	
6.	Control a range of assessment tools	
7.	Objective tools for exercise performance testing	
8.	Statistical software	
9.	Treatment of different types of primary variables	
10.	Reporting data, scientific publication.	

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.	Balague, N., Torrents, C., Hristovski, R., Davids, K., & Araújo, D. (2013). Overview of complex systems in sport. <i>Journal of Systems Science and Complexity</i> , 26(1), 4-13. <i>Comment: Article available online</i>			No	
2.	Bernecke, V., Pukenas, K., Daniuseviciute, L., Baranauskiene, N., Paulauskas, H., Eimantas, N., & Brazaitis, M. (2017). Sex-specific reliability and multidimensional stability of responses to tests assessing neuromuscular function. <i>Homo</i> , 68(6), 452-464. doi: 10.1016/j.jchb.2017.10.004. <i>Comment: Article available online</i>			No	
3.	Bernecke, V., Pukenas, K., Imbrasiene, D., Mickeviciene, D., Baranauskiene, N., Eimantas, N., & Brazaitis, M. (2015). Test-retest cross-reliability of tests to assess neuromuscular function as a multidimensional concept. <i>The Journal of Strength & Conditioning Research</i> , 29(7), 1972-1984. doi:10.1519/JSC.0000000000000841 <i>Comment: Article available online</i>			No	
4.	Cramer, A. O., van Ravenzwaaij, D., Matzke, D., Steingroever, H., Wetzels, R., Grasman, R. P., ... & Wagenmakers, E. J. (2016). Hidden multiplicity in exploratory multiway ANOVA: Prevalence and remedies. <i>Psychonomic bulletin & review</i> , 23(2), 640-647. <i>Comment: Article available online</i>			No	
5.	Ehrman, J. K., Kerrigan, D.J. Keteyian, S. J. (2018). <i>Advanced exercise physiology: essential concepts and applications</i> , Human kinetics.			No	1
6.	Field, P. (2017). <i>Discovering statistics using SPSS</i> . London: Sage.	004Fi69	1	No	
7.	Gratton, Ch., Jones, I. (2010). <i>Research methods for sports studies</i> . London: routledge.	796.01 Gr-131	1	No	1

№.	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		
8.	Goodall, S., et al., (2014). Transcranial magnetic stimulation in sport science: a commentary. <i>European Journal of Sport Science</i> , 14.sup1, 332-340.			No	1
9.	Julian, R., Hecksteden, A., Fullagar, H.H., Meyer, T. (2017). The effects of menstrual cycle phase on physical performance in female soccer players. <i>PLoS One</i> , 13;12(3): e0173951. doi: 10.1371/journal.pone.0173951.			No	
<i>Comment: Article available online</i>					
10.	Jurio-Iriarte, B, Gorostegi-Anduaga, I, Aispuru, G.R., Pérez-Asenjo, J., Brubaker, P.H., Maldonado-Martín, S. (2017). Association between modified shuttle walk test and cardiorespiratory fitness in overweight/obese adults with primary hypertension: EXERDIET-HTA study. <i>J Am Soc Hypertens</i> , Feb 7. pii: S1933-1711(17)30029-3. doi: 10.1016/j.jash.2017.01.008. (IF 2.6)			No	1
11.	Morrow, J., Jackson, A., Disch, P., Mood, D. (2005). <i>Measurement and Evaluation in Human Performance</i> . Champaign, Illinois: Human Kinetics.	613.7 Me-01	1	No	1
12.	Kenney W.L., Wilmore J.H., Costill D.L. (2015). <i>Physiology of sports and exercise</i> , sixth edition. Human Kinetics			No	
13.	Nevill, A., Atkinson, G., Hughes, M. And Cooper, S-M. (2002). Statistical methods for analysing discrete, categorical data recorded in sport performance and notation analyses. <i>Journal of Sports Science</i> , 20, 829 - 844.			No	1
14.	Nelson, L., Groom, R., Potrac, G.P. (2014). <i>Research methods in sports coaching</i> . London: Routledge.	796.01 Ne-015	1	No	
15.	O'Donoghue, P. (2010). <i>Research methods for sports performance analyses</i> . London: Routledge	796.01 O'd-01	1	No	1
16.	Tanner, R. K., & and Gore, Ch. J. (2016). <i>Physiological tests for elite athletes</i> . Human kinetics: Australian Institute of Sport Champaign			No	
17.	Thompson, T., Steffect, T., Ros, T., Leach, J., Gruzelier, J. (2008). EEG applications for sport and performance. <i>Methods</i> 45 (4), 279-288.			No	1
18.	Vincent, W.J. (2005). <i>Statistics in kinesiology</i> . 3rd Ed. Champaign, Illinois, Human Kinetics.			No	1
19.	Thomas, J.R.; Nelson, J.K., silverman, S.J. (2015). <i>Research methods in physical activity</i> . 7th Ed. Champaign: Human Kinetics.	796.01 Th31	1	No	

Additional literature

№.	Title
1.	Bourne, P.E., Barbour, V. (2011). Ten simple rules for building and maintaining a scientific reputation. <i>PLOS computational biology</i> , 7 (6), 1-2. http://www.ploscompbiol.org/article/info%3Adoi%2F10.1371
2.	Garson, G.D. (2012). <i>Univariate GLM, ANOVA, and ANCOV</i> . Ahttp://faculty.chass.ncsu.edu/garson/PA765/anova.htm
3.	Garson, G.D. (2012). <i>GLM Repeated Measures</i> . http://faculty.chass.ncsu.edu/garson/PA765/glmrepeated.htm

