

## LITHUANIAN SPORTS UNIVERSITY

## STUDY MODULE PROGRAMME (SMP)

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

### Entitlement

Research Methods and Empirical Observation

Prerequisites

Research methodology module for bachelor studies, bachelor studies

Course (module) Learning Outcomes

Cou	ise (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 canclusion. Reporting research data.

### Level of module

Level of programme Cycle Type		Cybicat aroun (under the reculation of the area)	Cubic at laval
		Subject group (under the regulation of the area)	Subject level
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 Sports United Sport	niversity	In Lithuanian Sports	Number of ex. in the methodical
34≌.	Title	Pressmark	Number of exemplars	University bookstore	cabinet of the depart.
1.	Balague, N., Torrents, C., Hristovski, R., Davids, K., & Araújo, D. (2013). Overview of complex systems in sport. Journal of Systems Science and Complexity, 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. Homo, 68(6), 452-464. doi: 10.1016/j.jchb.2017.10.004.			No	
	Comment:Article available online	1	1		
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. The Journal of Strength & Conditioning Research, 29(7), 1972-1984. doi:10.1519/JSC.00000000000000841			No	
	Comment:Article available online				
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. Psychonomic bulletin & review, 23(2), 640-647.			No	
	Comment:Article available online	1	1		
5.	Ehrman, J. K., Kerrigan, D.J. Keteyian, S. J. (2018). Advanced exercise physiology: essential concepts and applications, Human kinetics.			No	1
6.	Field, P. (2017). Discovering statistics using SPSS. London: Sage.	004Fi69	1	No	
7.	Gratton, Ch., Jones, I. (2010). Research methods for sports studies. London: routledge.	796.01 Gr-131	1	No	1

		Edition in 1	Lithmonion	In	Number of
		Sports U		In Lithuanian	ex. in the
№.	Title	libr	•		methodical
745.	Tiuc	1101	Number of	University	cabinet of
		Pressmark	exemplars	bookstore	the depart.
	Goodall, S., et al., (2014). Transcranial magnetic		one inplais	SSSRSIOIC	ine depuit.
8.	stimulation in sport science: a commentary. European			No	1
5.	Journal of Sport Science, 14.sup1, 332-340.			110	•
	Julian, R., Hecksteden, A., Fullagar, H.H., Meyer, T.				
	(2017). The effects of menstrual cycle phase on physical				
9.	performance in female soccer players. PLoS One,			No	
	13;12(3): e0173951. doi: 10.1371/journal.pone.0173951.				
	Comment:Article available online	•	-		-
	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				
10.	and cardiorespiratory fitness in overweight/obese adults			No	1
	with primary hypertension: EXERDIET-HTA study. J				
	Am Soc Hypertens, Feb 7. pii: S1933-1711(17)30029-3.				
	doi: 10.1016/j.jash.2017.01.008. (IF 2.6)				
	Morrow, J., Jackson, A., Disch, P., Mood, D. (2005).	613.7			
11.	Measurement and Evaluation in Human Performance.	Me-01	1	No	1
	Champaign, Ilinois: Human Kinetics.	1,10 01			
	Kenney W.L., Wilmore J.H., Costill D.L. (2015).				
12.	Physiology of sports and exercise, sixth edition. Human			No	
<u> </u>	Kinetics				
	Nevill, A., Atkinson, G., Hughes, M. And Cooper, S-M.				
12	(2002). Statistical methods for analysing discrete,			Mo	
13.	categorical data recorded in sport performance and			No	1
	notation analyses. Journal of Sports Science, 20, 829 - 844.				
	Nelson, L., Groom, R., Potrac, G.P. (2014). Research	796.01			
14.	methods in sports coaching. London: Routledge.	Ne-015	1	No	
	O'Donoughue, P. (2010). Research methods for sports	796.01			
15.	performance analyses. London: Routledge	O'd-01	1	No	1
	Tanner, R. K., & and Gore, Ch. J. (2016). Physiological	0 0 01			
16.	tests for elite athletes. Human kinetics: Australian			No	
10.	Institute of Sport Champaign			- 10	
	Thompson, T., Steffect, T., Ros, T., Leach, J., Gruzelier,	<u> </u>			
17.	J. (2008). EEG applications for sport and performance.			No	1
	Methods 45 (4), 279-288.				
1.0	Vincent, W.J. (2005). Statistics in kinesiology. 3rd Ed.			NI.	1
18.	Champaign, Illinois, Human Kinetics.			No	1
	Thomas, J.R.; Nelson, J.K., silverman, S.J. (2015).	706.01			
19.	Research methods in physical activity. 7th Ed.	796.01	1	No	
	Champaign: Human Kinetics.	Th31			

## Additional literature

№.	Title
1.	Bourne, P.E., Barbour, V. (2011). Ten simple rules for building and maintaining a scientific reputation. PLOS computational biology, 7 (6), 1-2. http://www.ploscompbiol.org/article/info%3Adoi%2F10.137
2.	Garson, G.D. (2012). Univariate GLM, ANOVA, and ANCOV. Ahttp://faculty.chass.ncsu.edu/garson/PA765/anova.htm
3.	Garson, G.D. (2012). GLM Repeated Measures. http://faculty.chass.ncsu.edu/garson/PA765/glmrepeated.htm

№.	Title					
4.	Yilmaz, K. (2013). Comparison of qualitative and quantitative research traditions: epistemological, theoretical, and methodological differences. European Journal of Education, 48(2), 311-325.					
Neil, R., Hanton, S., Fleming, S., Wilson, K. (2014). The research process in sport, exercis						
5.	Routledge.					
	Picton, T.W., et al	., (2000). Guidelines for using human event-related pote	entials to study cognition:			
6.	Recording standar	ds and publication criteria. Psychophysiology, 37, 127-	152.			
	Sparkes, A.C., Sm	ith, B. (2014). Qualitative research methods in sport, ex	ercise and health. London:			
7.	7. Routledge					
Coo	Coordinating lecturer					
	Position	Degree, surname, name	Schedule №.			

Position	Position Degree, surname, name	
Professor		33

Subdivision

Entitlement	Code
a	1006

# Study module teaching form №. 1

				Structu	ıre		Total	
Sem	ester	Mode of studies	Theory	Seminars	Lab Works	Ind. work	Total hours	Credits
A	S	D	14	45	0	331	390	15

Languages of instruction:

Lithuanian L English E Russian F	French F	German G	Other Oth.
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Plan of in-class hours

No of Thomas	€. of Themes Academic hours		ours	№. of Themes	Academic hours									
Nº. Of Themes	Theory	Seminars	Lab Works	Nº. Of Themes	Theory	Seminars	Lab Works							
1.	1	0	0	6.	2	10	0							
2.	2	0	0	7.	1	12	0							
3.	2	6	0	8.	2	3	0							
4.	2	2	0	9.	0	8	0							
5.	1	3	0	10.	1	1	0							
				Total:	14	45	0							

Schedule of individual work tasks and their influence on final grade

Schedule of illusvidual wor	k tasks and t	nen m	muence on miai gra	aue														
	№. of syllabus	Total hours	_						esentment of task (*) and reporting (o) 78910 11 12 13 14 15 16 17-20									
Test	2-3	65	10	П	*	Ī	0											
Directed private laboratory work	4-5	55	20			*	0											
Reporting for laboratory work	6-7	65	20					*		0								
Directed private laboratory work	6-7	65	25						*			0						
Accounting for practice sessions	9-10	81	25								*		0					
Total:	_	331	100															