

CLASS CARD**Methodology of Scientific Research**

Basic classes	Code in the study plan	ECTS
Methodology of Scientific Research	SII-16	2

Education profile	Academic
Faculty and field of study	Faculty of Physical Education
Studies program in which the subject is realized	Curriculum of PE course Curriculum of Sport course (Rehabilitation students may also take part in this methodology class)
Professor's name	Michał Lenartowicz (Chair of Humanities and Social Studies)
Level of studies (eg. bachelor, master)	Graduate (master studies)
Study year and semester	First year, second semester of graduate studies
Language	English
Method of realization (stationary/ distance learning)	Stationary
Lectures/classes hours	30
Form of passing classes	Written exam
Type of subject (obligatory/ facultative)	Obligatory (for Polish students of PE and Sport Faculty)
Prerequisites	Bachelor degree in sport sciences or social sciences. The course requires real English language reading and writing capacity. Students are requested to read and analyze methodology text and case studies for every class.

DETAILED INFORMATION**Course aims and objectives**

A1	Providing students information on the rules of science and scientific work..
A2	Practicing skills related to research projects design, carrying out research using research methods suitable for solving research problems stated and writing research reports
A3	Presenting key research methods, including qualitative research methodology and learning their applicability, designing selected research tools
A4	Learning rules of ethical conduct in scientific research

A5	Learning students primary rules of writing of scientific paper, report and dissertation
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LEARNING OUTCOMES IN KNOWLEDGE, SKILLS AND SOCIAL COMPETENCES FOR CLASSES

Learning outcome	Subject's learning outcomes
Knowledge	
K_W01 Analyses and evaluates processes, relations and causes of changes that occur in the human body during ontogenesis as a result of civilization changes and adopted lifestyle and knows general principles of ecosystem functioning. Understands the impact of human activity on nature and knows the current strategies and forms of nature conservation.	Student knows and understands the rules of science and main research methods, techniques and research tools. He/she knows how to use existing data and literature resources.
K_W02 Knows and understands basic ethical problems and comprehends the biological and cultural concepts of man. Knows and understands general history of thoughts, ideas and philosophical views related to sport (physical culture).	Student knows requirements and determinants of sample design, knows scientific research stages and schemes and ethical rules for scientific research.
K_W03 Knows objectives and functions of sport sciences - subjects and methods. Knows and understands basic principles of logic, principles of scientific research, research workflows and basic methods, techniques and research tools. Understands the sampling method. Knows the rules of writing a research paper and ethical principles applicable in research.	Knows and understands the structure of research reports and dissertations
Skills	
S_U01 Ability to assess causes of changes that take place in the human body as a result of adopted lifestyles and to recognize dangers for natural environment resulting from human activities.	Student is able to plan and carry out scientific research in social sport sciences
S_U02 Ability to logical analysis to solve problems of general nature. Ability to assume appropriate attitude towards important philosophical issues relating to the sense of life and biological values associated with it.	Student is able to use scientific language of sport sciences and formulate and express his/her professional opinions using logical rationale and scientific evidences.

S_U03 Ability to formulate and solve research problems in the context of physical culture sciences. Ability to use basic methods of research and to use research tools available, as well as to evaluate accepted research procedures and to interpret results achieved.	Student is able to formulate research questions and solve research problems. He/she is capable of applying various research methods and research tools and interpret obtained data.
S_U04 Ability to create projects and plans of own professional development and select or devise teaching programs. Ability to measure the quality of the functioning of diverse organizations and institutions, including educational ones. Ability to make use of values related to sport (physical culture), Olympism and health in physical education and the prevention of social pathologies.	Student is capable of designing basic research tools (such as questionnaire or observation sheet), testing them and applying in field research.
S_U05 Ability to use basic motivation techniques in promoting a healthy lifestyle.	Student is able to co-operate with other in the process of planning and carrying out scientific research in the field of sport, PE and tourism.
S_U06 Ability to evaluate the accuracy of selected exercise and effort programs depending on the age and physical fitness of people exercising.	Student is capable of writing research plans, proposals and literature reviews needed for the purpose of scientific research.
Social Competences	
K_K05 Ability to express his opinions in a persuasive way, can negotiate effectively and use basic communication techniques.	Student is capable of presenting his/her views, conduct academic discussion with presentation of own arguments, accepting other points of view, negotiating commonly agreed solutions.
K_K06 Ability to establish social relations in the desired manner making effective use of available communication channels with individuals and social groups.	Students understand respondent-researcher relationship and the role of proper communication in the process of scientific research
K_K08 Promotion of the value of life and health including popularisation of ecological behaviour in educational activities and local community. Strong skill for the dissemination of knowledge related to benefits of practicing sport throughout the entire life and its impact on the physical condition and state of health.	Student knows how do organise the group for solving the research task, how do delegate tasks and how to control their execution

K_K10 Ability of independent and critical complementing of own knowledge and skills. Use of interdisciplinary approach to the field of specialisation during the execution of assigned tasks.	Student is able to independently and critically analyse scientific literature and research reports results, knowing multidisciplinary character of sport science and tourism research.
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SUBJECT PROGRAM CONTENT DIVISION BY FORMS OF IMPLEMENTATION

FORM OF CLASSES – LECTURE - subject		Reference to subject-specific learning outcomes
The course has a form of active lecture engaging students in gaining methodological knowledge and skills		
FORM OF CLASSES – CLASSES – subject		Reference to subject-specific learning outcomes

PLANNED METHODS/FORMS/TEACHING MEANS

Program content	Teaching methods/forms
Presentation of the subject matter of the lectures, the organization of the classes, the conditions for passing the course and the literature. Practical familiarization of students with the principles and methods of work ensuring occupational safety and health when performing activities in the course with and/or without technical devices, equipment. Introduction: The subject of methodology. Descriptive and normative methodology. Science as a product and activity of man. Questions, functions and conditions for the emergence of science.	Lecture, discussion, group tasks and other activities for students
Defining: basic types of definitions (analytical, synthetic, regulatory). Structure of analytical definition. Methods of fleshing out analytical definitions. Common faults of analytical definitions.	
Classifications and typologies: Conditions for logical correctness of classifications. Construction of multistage classifications.	

Classification versus ordering. Ordering relations. Creation of typologies (“ideal types”).	
Criteria for logical evaluation of sentences: The logical sentence and its types. Sentence versus judgment. Classical and non-classical concepts of truthfulness of sentences. Relativism.	
The conclusiveness of deductive reasoning: Deductive reasoning, reductive reasoning. Inference. Proof. Deductive method. Deductive system.	
Induction: Induction as a generalizing translation. Induction by enumeration. Induction by elimination. Mill's canons of induction.	
Stages of research work: Scientific problem. Types of research questions and their assumptions. Theoretical hypotheses and working hypotheses. Verification and falsification of hypotheses.	
Variables and scales: Scope of applicability (qualitative and quantitative variables). Power of variables (nominal, ordinal, interval, quotient).	
Indicators: Concept of indicator. Definitional and factual indicators. Measures of relevance of indicators. Batteries of indicators.	
Sampling methods: Concept of sample and its types (random, quota). General criteria of sample selection. The problem of shortages in a random sample.	
Research methods: Selection of research methods. Advantages and limitations of the methods used. Types of methods: observation, experiment, analysis of written sources and creations.	
Principles of survey and questionnaire construction: Techniques of survey research. Principles of questionnaire construction. Coding of open-ended questions.	
Design and conduct of qualitative research: Applications of qualitative research methods. Characteristics of qualitative approaches in social research. Examples of qualitative research implementation: interview, text analysis. Analysis of qualitative data and their use in research reports.	
Ethics in research: Ethical issue in social research: voluntariness of participation, non-harming of subjects, anonymity and confidentiality, analysis and presentation of results. Political aspects of social research: objectivity and ideology.	
Teaching resources:	

METHODS OF VERIFYING THE EXPECTED LEARNING OUTCOMES ACHIEVED BY THE STUDENT

Learning outcomes for classes	Assessment methods
Knowledge on the rules of science and research methodology and skills in designing research proposals	Written exam, evaluation of group work results, evaluation of individual homework.

CONDITIONS FOR PASSING CLASSES:

Passing a written test of knowledge and skills and getting positive evaluation of inter-course homework and group tasks. A prerequisite for passing the course is also attendance in class and credit for any absences.

SAMPLE ASSESSMENT/EXAMINATION TOPICS

1. Basic types of definitions (analytical, synthetic, regulative).
2. Conditions of logical correctness of classification.
3. Logical sentence and its types.
4. Reasoning. Deductive method.
5. Reasoning. Induction as probabilistic inference.
6. Types of variables (nominal, ordinal, interval, quotient).
7. Measures of accuracy of indicators.
8. General criteria for sampling.
9. Selection of research methods.
10. Techniques of survey research. Principles of questionnaire construction.
11. Characteristics of qualitative approaches in social research.
12. Ethical issues in social research.

ENGLISH BIBLIOGRAPHY

Basic	Veal A.J. (1992) <i>Research Methods for Leisure and Tourism: A Practical Guide</i> , London: Pitman Publishing. Nooij A. T. J. (1995) <i>Social Methodology. Normative and descriptive methodology of basic designs of social research</i> , WAU, Wageningen.
Additional	Babbie E. (2007) <i>Badania społeczne w praktyce [The Practice of Social Research]</i> , Warszawa, PWN. Jankowski K., Lenartowicz M. (2012) <i>Metodologia badań empirycznych [Methodology of Empirical Research]</i> , Warszawa, AWF. Popper K. R. (1977) <i>Logika odkrycia naukowego [Logic of Scientific Discovery]</i> , Warszawa, PWN. Silverman, D. (2009). <i>Interpretacja danych jakościowych [Interpreting Qualitative Data]</i> . Warszawa: PWN.

CONTACT HOURS AND SELF STUDY

Full-time studies	
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Number of hours to complete the activity	ECTS	Type of activity
30	1	contact hours with a teacher
30	1	individual student's work
Total: 60	2	

Number of ECTS points that a student obtains in classes developing practical skills: ...not applicable (academic profile)....

Author of the class card:	Name, surname and email
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