



## COURSE CARD

### 1. Basic information

Course name in English:	Research skills	
Course name in Polish:	Warsztat badacza	
Number of hours:	30	
Type of course:	Research skills	
Form of course:	lecture	
Code of course:	W08NZJ-SD0092W / NZQ100382W	
Course leader:	Dr hab. inż. Katarzyna Tworek, prof. uczelni	
Faculty of the course leader:	W8 Faculty of Management	
Email address of the course leader:	katarzyna.tworek@pwr.edu.pl	
Scientific discipline(s) assigned to the course (doctoral students representing the marked disciplines can participate in the course):	Architecture and urban planning	<input checked="" type="checkbox"/>
	Automation, electronic, electrical engineering and space technologies	<input checked="" type="checkbox"/>
	Information and communication technology	<input checked="" type="checkbox"/>
	Biomedical engineering	<input checked="" type="checkbox"/>
	Chemical engineering	<input checked="" type="checkbox"/>
	Civil engineering, geodesy and transport	<input checked="" type="checkbox"/>
	Materials engineering	<input checked="" type="checkbox"/>
	Mechanical engineering	<input checked="" type="checkbox"/>
	Environmental engineering, mining, and energy	<input checked="" type="checkbox"/>
	Mathematics	<input checked="" type="checkbox"/>
	Chemical sciences	<input checked="" type="checkbox"/>
	Physical sciences	<input checked="" type="checkbox"/>
Management and quality studies	<input checked="" type="checkbox"/>	

### 2. Objectives

C1: Acquiring knowledge on conducting scientific research in the discipline of management and quality sciences and on preparing publications of the results.

C2: Acquiring the ability to apply knowledge in practice concerning the design, implementation and description of empirical research, critical analysis of literature and the editing of scientific text.

### 3. Content

*Detailed information about the course content, including topics and form of classes.*

No.	Topic	Number of hours	Form of classes
1	Scientific research in the discipline of management and quality science - introduction.	2	lecture



2	Methods of searching and acquiring scientific knowledge.	2	lecture
3	Scientific career.	2	seminar
4	Methods of conducting critical literature analysis - a review.	2	lecture
5	Design, implementation and description methods of empirical research - a review.	2	lecture
6	Scientific article - characteristics, structure, language requirements.	2	lecture
7	What, where and how to publish?	2	lecture
8	Presentation of scientific research results and public speech.	2	lecture
9	Acquiring funds for research - preparing applications for financial resources for scientific research.	2	lecture
10-14	Presentation of a selected scientific article and critical analysis of the structure and substantive content.	10	seminar
15	Summary.	2	lecture

#### 4. Prerequisites

List of prerequisites relating to knowledge, skills and other competences for course participants.

none

#### 5. Learning outcomes

List of learning outcomes at level 8 of the Polish Qualifications Framework assigned to the course (mark the learning outcomes in the last column).

Symbol	Learning outcome	
	<b>KNOWLEDGE. Doctoral student knows and understands:</b>	
SzD_W3	the main trends in the development of the scientific or artistic disciplines covered in the curricula;	<input type="checkbox"/>
SzD_W4	research methodology;	<input checked="" type="checkbox"/>
SzD_W5	the rules for the dissemination of scientific results, including in open access mode;	<input checked="" type="checkbox"/>
SzD_W6	the fundamental dilemmas of modern civilization;	<input checked="" type="checkbox"/>
SzD_W7	the legal and ethical conditions of scientific activity;	<input type="checkbox"/>
SzD_W8	the economic and other relevant conditions of scientific activity;	<input checked="" type="checkbox"/>
SzD_W9	basic principles of knowledge transfer to the economic and social spheres and commercialisation of results of scientific activity and know-how related to these results.	<input checked="" type="checkbox"/>
	<b>SKILLS. Doctoral student is able to:</b>	
SzD_U2	use knowledge from different fields of science or art to creatively identify, formulate and innovatively solve complex problems or perform research tasks, in particular:	<input checked="" type="checkbox"/>



	- define the purpose and subject of scientific research, formulate a research hypothesis, - develop research methods, techniques and tools, and use them creatively, - draw conclusions on the basis of scientific research; critically analyse and evaluate the results of scientific research, expertise and other creative work and their contribution to knowledge development; transfer the results of scientific activities to the economic and social spheres;	
SzD_U3	communicate on specialised topics to the extent that they enable an active participation in the international scientific community;	<input type="checkbox"/>
SzD_U4	disseminate research results, including in popular forms;	<input checked="" type="checkbox"/>
SzD_U5	initiate debates and participate in a scientific discourse;	<input type="checkbox"/>
SzD_U6	be able to speak a foreign language at B2 level of the Common European Framework of Reference for Languages to a level that enables them to participate in the international scientific and professional environment;	<input type="checkbox"/>
SzD_U7	plan and implement an individual or collective research or creative activity, including in an international environment;	<input checked="" type="checkbox"/>
SzD_U8	independently plan and act for one's own development and inspire and organize the development of others;	<input type="checkbox"/>
SzD_U9	plan classes or groups of classes and implement them using modern methods and tools.	<input type="checkbox"/>
	<b>SOCIAL COMPETENCES. Doctoral student is ready to:</b>	
SzD_K3	fulfilling the social obligations of researchers and creators, initiate public interest activities, thinking and acting in an entrepreneurial way;	<input checked="" type="checkbox"/>
SzD_K4	maintaining and developing the ethos of research and creative environments, including: - carrying out scientific activities in an independent manner, - respecting the principle of public ownership of research results, taking into account the principles of intellectual property protection.	<input checked="" type="checkbox"/>

## 6. Evaluation

Short description of the method(s) used to evaluate the learning outcomes assigned to the course, e.g., exam, test, report, presentation, etc.

Type of learning outcome	Assessment of <i>learning outcome</i>
Knowledge	Presentation of the selected article prepared and carried out by the student in classes L6-14
Skills	Presentation of the selected article prepared and carried out by the student in classes L6-14

## 7. Teaching methods

Short description of the method(s) used to evaluate the learning outcomes assigned to the course, e.g., exam, test, report, presentation, etc.



N1. computer

N2. projector

N3. blackboard

## 8. Literature

*List of primary and secondary literature used to prepare the course and including additional knowledge for participants, e.g., books, textbooks, research papers, standards, web pages, etc.*

### **PRIMARY LITERATURE:**

- [1] Jonker, J., & Pennink, B. (2010). The essence of research methodology: A concise guide for master and PhD students in management science. Springer Science & Business Media.
- [2] Taylor, B., Sinha, G., & Ghoshal, T. (2006). Research methodology: A guide to for reseachers in management and social sciences. PHI Learning Pvt. Ltd..
- [3] Scandura, T. A., & Williams, E. A. (2000). Research methodology in management: Current practices, trends, and implications for future research. *Academy of Management Journal*, 43(6), 1248-1264.
- [4] Czakon, W. (Ed.). (2011). *Podstawy metodologii badań w naukach o zarządzaniu*. Wolters Kluwer Polska.
- [5] Juszczak, S. (2013). *Badania jakościowe w naukach społecznych szkice metodologiczne*. Katowice, Poland: Wydawnictwo Uniwersytetu Śląskiego.

### **SECONDARY LITERATURE:**

- [1] Becker, H. S. (2008). *Writing for social scientists: How to start and finish your thesis, book, or article*. University of Chicago Press.

## 9. Other remarks

*Additional remarks, comments, (e.g., language of the course)*

Form: remote classes