



COURSE OFFERED IN THE DOCTORAL SCHOOL

Code of the course		Name of the course	Polish	Od neuronu do świadomości		
			English	From Neuron to Consciousness		
Type of the course	Specialty course					
Course coordinator	dr hab. Jacek Rogala		Course teacher	dr hab. Jacek Rogala (Politechnika Warszawska, Centrum Wiarygodnej Sztucznej Intelgencji)		
Implementing unit	Centrum Studiów Zaawansowanych PW	Scientific discipline / disciplines*	physical sciences, biotechnology, mathematics, chemical sciences			
Level of education	Doctoral studies	Semester	Winter 2025			
Language of the course	English					
Type of assessment	ZAL.	Number of hours in a semester	30	ECTS credits	2	
Minimum number of participants	12	Maximum number of participants	49	Available for students (BSc, MSc)	Yes/ No	
Type of classes		Lecture	Auditory classes	Project classes	Laboratory	Seminar
Number of hours	in a week	2	X	X	X	X
	in a semester	30	X	X	X	X

* does not apply to the Researcher's Workshop

1. Prerequisites

None

2. Course objectives

Acquire basic knowledge of the neurobiology of brain function and basic research methods

3. Course content (separate for each type of classes)

Lecture

The content of the lecture will include:

1. basic brain anatomy
2. neuron
3. research methods
- 4 Senses: Sight
- 5 Senses: hearing and speech
6. movement and touch
7. memory and emotion
8. Psychoactive substances
9. Brain stimulation
10. consciousness

Laboratory

None

4. Learning outcomes



Doctoral School

Warsaw University of Technology

Type of learning outcomes	Learning outcomes description	Reference to the learning outcomes of the WUT DS	Learning outcomes verification methods*
Knowledge			
K01	Has a structured knowledge of the basic operation of the brain	SD_W2	test
K02	Has a structured knowledge of the basic brain research methods	SD_W3	test
K03	Understand basics of neuronal activity	SD_W2	test
Skills			
S01	Can understand scientific texts in the field	SD_U1	test
S02	Understands basic principles of information processing in the brain	SD_U4	test
Social competences			
SC01	Is able to clearly, understandably and logically draw conclusions based on experimental data	SD_K1	test

*Allowed learning outcomes verification methods: exam; oral exam; written test; oral test; project evaluation; report evaluation; presentation evaluation; active participation during classes; homework; tests

5. Assessment criteria

The number of possible absences to pass the course - two, over this number no possibility to pass the course.

6. Literature

Primary references:

- [1] Frith, C.D. (2007) Making up the mind: how the brain creates our mental world. Oxford, Wiley-Blackwell.
- [2] "Neuroscience: Exploring the Brain" by Mark F. Bear, Barry W. Connors, and Michael A. Paradiso
- [3] "An Introduction to Brain and Behavior" by Bryan Kolb and Ian Q. Whisha

Secondary references:

- [1] "The Man Who Mistook His Wife for a Hat" by Oliver Sacks

7. PhD student's workload necessary to achieve the learning outcomes**

No.	Description	Number of hours
1	Hours of scheduled instruction given by the academic teacher in the classroom	30
2	Hours of consultations with the academic teacher, exams, tests, etc.	5
3	Amount of time devoted to the preparation for classes, preparation of presentations, reports, projects, homework	10
4	Amount of time devoted to the preparation for exams, test, assessments	10
Total number of hours		55
ECTS credits		2

** 1 ECTS = 25-30 hours of the PhD students work (2 ECTS = 60 hours; 4 ECTS = 110 hours, etc.)

8. Additional information

Number of ECTS credits for classes requiring direct participation of academic teachers	1
Number of ECTS credits earned by a student in a practical course	