DOCTORAL SCHOOL OF WROCŁAW UNIVERSITY OF SCIENCE AND TECHNOLOGY

SUPERVISOR DECLARING/CONDUCTING COURSE: prof. dr hab. Katarzyna Weron
DEPARTMENT: K64W11D11
SCIENTIFIC DISCIPLINE: Physical sciences

COURSE CARD

Course name in Polish: Seminarium interdyscyplinarne: Fizyka statystyczna w układach złożonych
Course name in English: Statistical Physics in Complex Systems
Course language: English
University-wide general course type*: YES
The course is intended for all PhD students: YES / ~~NO~~
1) BASIC COURSE
2) SPECIALIST COURSE
3) <u>SEMINAR</u>
4) HUMANISTIC COURSE
5) LANGUAGE

Subject code: NFQ100209S

* delete as applicable

	Lecture	Foreign language course	Seminar	Mixed forms
Number of hours of organized classes in university (ZZU)			15	
Grading	Exam	Exam	Oral presentation	Exam, inspection, evaluation classes

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Passing courses such as Theory of Probability, Stochastic Modeling, Monte Carlo simulations may be beneficial, however, it is not compulsory.

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COURSE OBJECTIVES

C1 Learning about the interdisciplinary applications of statistical, stochastic and numerical methods to study various types of complex systems, with particular focus on the social systems
C2. Learning about the concepts and methods of statistical physics in the modeling and analysis of complex systems
C3 Understanding the idea of agent modeling, agent modeling on complex networks, application of agent modeling in various complex systems
C4. Developing communication skills with representatives of various scientific disciplines in the field of social, natural and computer sciences, as well as mathematics.
C5 Developing the ability to prepare and deliver a scientific seminar in English
C6 Developing the ability to conduct scientific discussions

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PROGRAM CONTENTS

Form of classes	Number of hours
Seminar presentations by invited guests and PhD students. Discussion	15
Total hours	15

TEACHING TOOLS USED

N1. Audio-visual seminar
N2. Independent study and preparation of a presentation
N3. Discussions

ACHIEVED SUBJECT LEARNING OUTCOMES

Type of learning outcome	Code of learning outcome	Assessment of learning outcome
Universal		PhD student presents the selected subject in a transparent and logical manner and chooses visual tools properly, competently cites other authors.

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Publications in scientific journals in the field of complex systems and scientific interdisciplinary journals, such as Chaos, PLOS ONE, PNAS, Nature, Science etc.

SECONDARY LITERATURE:

[1] Textbooks and monographs on the statistical physics of complex systems, agent-based modeling and complex networks

SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)

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