

## DESCRIPTION OF THE COURSE OF STUDY FOR EXCHANGE STUDENTS

<b>Name of the course in</b>	English	<b>Computer methods of modeling complex systems</b>
	Polish	<b>Metody komputerowe modelowania układów złożonych</b>

### 1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

<b>1.1 Field of study</b>	<b>physics</b>
<b>1.2 Level of study</b>	<b>2<sup>nd</sup> degree</b>

### 2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

<b>2.1 Language of instruction</b>	<b>English</b>
<b>2.2 Semesters in which the course of study is offered</b>	<b>Fall</b>
<b>2.3 ECTS credits</b>	<b>2</b>

### 3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

<b>3.1. Form of classes</b>	<b>15 hrs of lectures</b>
<b>3.2. Form of assessment</b>	<b>homework</b>

### 4. OBJECTIVES, SYLLABUS CONTENT

<p><b>4.1. Course objectives</b></p> <p><b>C1 – Knowledge of modeling complex physical systems</b></p> <p><b>C2 – Application of basic computer methods used in complex physical systems</b></p>
<p><b>4.2. Detailed syllabus: Monte Carlo methods, Ising model, Metropolis algorithm, nonlinear dynamics, catastrophe theory, deterministic chaos, Feigenbaum constant, quantum chaos. Mathematica is used as a basic tool.</b></p>