DESCRIPTION OF THE COURSE OF STUDY
FOR EXCHANGE STUDENTS

Name of the course in	English	Topology I
	Polish	Topologia I

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

1.1 Field of study	Mathematics
1.2 Level of study	Undergraduate (Bachelor)

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1 Language of instruction	English
2.2 Semesters in which the course of study is offered	Spring (IV)
2.3 ECTS credits	4

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	Lecture, classes
3.2. Form of assessment	Exam (lecture), assessment (classes)

4. OBJECTIVES AND SYLLABUS CONTENT

4.1. **Course objectives**
C1. Introduction to basic knowledge of topology.
C2. Developing the ability to use topological spaces.
C3. Making the habit of learning, improving one's own work technique.

4.2. Detailed syllabus
1. Metric spaces. Convergence of sequences, Open sets in metric spaces.
2. The concept of topological space - various examples.
3. Operations on subsets of topological spaces: interior, closure, boundary.
4. Continuous mappings. Homeomorphisms.
4. Introducing topologies via bases and subbases.
5. Operations on topological spaces: subspaces, sums, products, quotients.
6. Separation axioms. Urysohn Lemma. Tietze-Urysohn's theorem.
7. Countability conditions in topological spaces: countable base, separability, Lindelof property, etc.
8. Compact spaces.
9. Connected and path connected spaces.
10. Elements of Dimension Theory.