UNIVERSITY
WARMIA AND MAZURY IN OLSZTYN

Faculty of Mathematics and Computer Science

Course title: **INTRODUCTION TO TOPOLOGY**

ECTS credit allocation (and other scores): **4**

Semester: autumn

Level of study: ISCED-6 - first-cycle programmes (EQF-6)

Branch of science: Natural sciences

Language: English /Polish

Number of hours per semester: 30 lectures + 30 classes = 60 hours

Course coordinator/ Department and e-mail: Erasmus coordinator Anna Szczepkowska/ WMiI, erasmuswmii.uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: Solving problems illustrating main theorems proved in the course.

LECTURES:
Metric spaces, open and closed sets, closure, interior and boundary. Continuous maps of metric spaces. Convergence in metric spaces. Complete metric spaces and applications.. Compactness. Connectedness and path-connectedness. Topological spaces. Homeomorfizm and homotopy. Fundamental group and homotopy invariants.

LEARNING PURPOSE

Understanding basic concepts of topology and their role in other areas of mathematics.

On completion of the study programme the graduate will gain:

Knowledge:

The student knows the most important concepts and theorems of basic topology. He/she understands the role and the importance of assumptions of proof in geometry. The student knows situations when topological reasoning helps in understanding various problems of analysis.
Skills:

The student knows how to solve basic types of problems using topological reasoning.

Social Competencies:

The student knows the limits of his own knowledge and understands the need for further education. He works independently and in a team. Can formulate questions for understanding the subject or filling in the gaps in the reasoning.

BASIC LITERATURE

1) Cz. Kosniowski, A first course in algebraic topology, Cambridge Univ. Press, 1980.

SUPPLEMENTARY LITERATURE

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 2,14 ECTS points,

Student's independent work: 1,86 ECTS points,