

Topologie

Lecturers

Denis BONHEURE (Coordinator) and Thibaut GROUY

Course mnemonic

MATH-F211

ECTS credits

5 credits

Language(s) of instruction

French

Course period

First term

Course content

Metric spaces. Topological spaces. Hausdorff spaces. Connected spaces. Compactness via open covers. Compactness via sequences. Completeness. Criteria for compactness.

Objectives (and/or specific learning outcomes)

This course introduces metric and topological spaces. The aim is to formulate a language which is effective for discussing the continuity of a map between two spaces. The result is to give precise meaning to the slogan "f is continuous if a small change in x implies a small change in f(x)". Having seen the definition of a continuous map, we study the relation between the space itself and the behaviour of continuous maps into and out of the space. We discuss, amongst other topics, Hausdorff spaces, connected spaces and compact spaces. Ce cours introduit les espaces métriques et topologiques. L'objectif est de trouver un langage effectif pour discuter la continuité d'une application entre deux espaces. Le résultat est une précision du slogan "f est continue si un petit changement de x entraîne un petit changement de f(x)". Ayant vu la définition d'une application continue, nous étudions la relation entre l'espace soi-même et le comportement des applications continues de l'espace ou vers l'espace. Nous traitons, en particulier, les espaces de Hausdorff, les espaces compacts, les espaces connexes.

Pre-requisites and co-requisites

Pre-requisites courses

MATH-F101 | Calcul différentiel et intégral I | 15 crédits

Course having this one as pre-requisit

MATH-F310 | Differential geometry I | 5 crédits

Teaching method and learning activities

Lectures and tutorials

References, bibliography and recommended reading

Lecture notes available from the Université Virtuel. We will for the most part follow the book "An introduction to metric and topological spaces" by Wilson Sutherland.

Other information

Contact(s)

joel.fine@ulb.ac.be

Evaluation method(s)

Other

Evaluation method(s) (additional information)

3h written exam.

Main language(s) of evaluation

French

Programmes

Programmes proposing this course at the faculty of Sciences

BA-MATH | Bachelor in Mathematics | unit 2