

Content

| Course Code | Course Name | Semester | Theory | Practice | Lab | Credit | ECTS |
|-------------|-------------|----------|--------|----------|-----|--------|------|
| MAT301 | Topology | 5 | 4 | 0 | 0 | 4 | 8 |

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| Prerequisites | MAT101, MAT102 |
| Admission Requirements | MAT101, MAT102 |

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| Language of Instruction | French |
| Course Type | Compulsory |
| Course Level | Bachelor Degree |
| Objective | Master elementary topology via the study of the topology of metric spaces. |
| Content | Metric spaces (main inequalities, distances, equivalent distances, examples of metric sapces, normed vector spaces and convexity, distance between two sets and diametre, open and closed balls, neighborhood, open and closed sets, closure and interior, dense subsets). Topology (topological spaces, induced topology). Sequences in metric spaces (convergence, convergence in a product of metric spaces, limit point, caractersation of closed sets with sequences, Cauchy sequences, complete spaces). Continuous maps between metric spaces (sequential and topological caracterisation of continuity, uniform continuity, lipshizt maps). Compactity. Connectedness |
| References | Léa Blanc-Centi - Cours de Topologie http://math.univ-lille1.fr/~blanccen/Enseignement/td/1314/L3/Topologie_Cours.pdf James Munkres, Topology. Georges Skandalis - Topologie et analyse -Dunod (2004) |

Theory Topics

| Week | Weekly Contents |
|------|--------------------|
| 1 | Metric Spaces |
| 2 | Metric Spaces |
| 3 | Metric spaces |
| 4 | Metric spaces |
| 5 | Topological spaces |
| 6 | Topological spaces |
| 7 | Topological spaces |
| 8 | Topological spaces |
| 9 | Continuity |
| 10 | Continuity |
| 11 | Continuity |
| 12 | Compacity |
| 13 | Compacity |
| 14 | Connexity |