

ERM153 Spatial Data Management with Geographic Information Systems Applications.

- Semester: First
- Type: Elective
- Instructor: Sotiris Koukoulas
- ECTS Credits: 6

This course focuses on methods of spatial statistics and engineering, as well as statistical learning. It examines the three main pillars of spatial statistics: Point Pattern Analysis, Analysis of Spatially Continuous Data, and Analysis of Area Data. Additionally, it covers classification methods (supervised learning) such as decision trees, random forests, support vector machines, and neural networks.

Assessment

The evaluation of the students is based on the submission of a written assignment (text in the form of a scientific paper).

Explicitly defined assessment criteria are accessible to students in the regulations of the Joint Postgraduate Program (Article 15).

Indicative Bibliography

- Heywood I., S. Cornelius, S. Carver, 2012. An Introduction to Geographical Information Systems, Pearson, 4th Edition.
- Burrough P.A., R.A. McDonnell and C. D. Lloyd. 2015, Principles of Geographical Information Systems, Oxford University Press, 3rd Edition
- Longley P.A., M. F. Goodchild, D. J. Maguire and D. W. Rhindm, 2015. Geographic Information Science and Systems, Wiley, 4th Edition.
- Longley P.A., M. F. Goodchild, D. J. Maguire and D. W. Rhindm, 2015. Geographic Information Systems, Abridged Edition
- Lo C. P. and Yeung A.K.W. 2005. Concepts and Techniques of Geographic Information Systems. Prentice Hall.
- Monmonier M., 2018. How to Lie with Maps, University of Chicago Press, 3rd Edition
- Slocum T.A., R. B. McMaster, F. C. Kessler and H.H. Howard, 2022. Thematic Cartography and Geo-visualization, CRC Press, 4th Edition
- O'Sullivan D. and D. Unwin, 2010. Geographic Information Analysis, Wiley, 2nd Edition
- Malczewski J. and C. Rinner, 2015. Multi-criteria Decision Analysis in Geographic Information Science, Springer.

Related academic journals:

- Computers, Environment and Urban Systems
- Applied Geography
- International Journal of Applied Earth Observation and Geoinformation
- *Cities*