






In view of the health context linked to the spread of the coronavirus, the methods of organisation and evaluation of the learning units could be adapted in different situations; these possible new methods have been - or will be - communicated by the teachers to the students.

5 credits	30.0 h + 30.0 h	Q1
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Teacher(s)	Hafner Christian ;
Language :	French
Place of the course	Louvain-la-Neuve
Aims	<i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i>
Evaluation methods	Due to the COVID-19 crisis, the information in this section is particularly likely to change. The evaluation is based on a test of knowledge (short-answers questions), a personal project on a realistic dataset, the presentation of selected recent articles drawn high-ranked journals (Regional Science and Urban Economics, Journal of Urban Economics,).
Teaching methods	Due to the COVID-19 crisis, the information in this section is particularly likely to change. lectures on theory and illustrations on computers
Content	Summary The econometric techniques used in economic geography have dramatically improved during the last decade. Moreover, similar statistical problems arise in the various fields of physical geography. The objective of the course is to allow a geographer acquainted with a preliminary background in statistics to meet the level of statistical requirements for understanding articles and for publishing in high-ranking journals. The course focuses on linear models. A great deal of efforts is placed on the statistical validation of these models: selection of variables, functional form, endogeneity problems, temporal and spatial autocorrelation in errors terms, selection biases, etc. To ignore misspecifications of the model may entail spurious interpretations and unreliable predictions. Several techniques that allow to overcome some of these issues are studied: weighted least-squares, feasible generalized least squares, instrumental variables, autoregressive and correlated error models, etc. An initiation to the R language is also provided, as well as an exploration of the related spatial statistics libraries. Methods Theoretical developments and practical illustrations on the computer alternate during the class.
Inline resources	Every note, chunk of R code, or dataset used in the course is available on the moodle site associated with this course.
Bibliography	<ul style="list-style-type: none"> • R Bivand, E Pebesma and V Gómez-Rubio, Applied Spatial Data Analysis with R, Springer, New York, 2008. • MJ Crawley, Statistics: An Introduction Using R, John Wiley, 2005. • MJ Crawley, The R Book, John Wiley, 2007. • O Schabenberger and C Gotway, Statistical Methods for Spatial Data Analysis, Chapman & Hall, 2005. • WN Venables and BD Ripley, Modern Applied Statistics with S (4th edition), Springer, 2002. • M Verbeek, A Guide to Modern Econometrics, John Wiley, 2000.
Other infos	Prerequisite GEO1341 Modélisation statistique en géographie (or similar).
Faculty or entity in charge	GEOG

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Interdisciplinary Advanced Master in Science and Management of the Environment and Sustainable Development	ENVI2MC	5		
Master [120] in Geography : General	GEOG2M	5		
Master [120] in Statistic: General	STAT2M	3		
Master [120] in Geography : Climatology	CLIM2M	5		
Master [60] in Geography : General	GEOG2M1	5		
Advanced Master in Quantitative Methods in the Social Sciences	LMQS2MC	5		