LGEO2211

2014-2015

Advanced statistical methods in geography

5.0 credits	30.0 h + 30.0 h	1q

Teacher(s) :	Peeters Dominique ;
Language :	Français
Place of the course	Louvain-la-Neuve
Aims :	*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".*
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.
Other infos :	Prerequisite GEO1341 Modélisation statistique en géographie (or similar). Evaluation 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,). Reference - 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. Support Every note, chunk of R code, or dataset used in the course is available on the iCampus site associated with this course. For copyright reasons, the site is only accessible to the enrolled students.
Cycle and year of study :	> Master [120] in Statistics: General > Master [120] in Geography : General > Master [120] in Geography : Climatology
Faculty or entity in charge:	GEOG