

Module 231: Major Spatial Analysis	
Module 231	Spatial analysis
UE coordinator	Cindy Padilla Biostatistic professor Department Epi-Biostat, EHESP
Dates	16 to 20 January 2017
Credits/ECTS	
Duration	5 days of 7 hours = 35 hours
Module description	<p>Mapping is a useful and powerful tool to represent information which varies on a territory.</p> <p>It is particularly true in public health issues where health determinants are multiples and may be related to individual behavior and also to neighborhood factors which are not equally distributed in the space.</p> <p>Detecting clusters grouping small areas at greater health risk tends to be a appropriate method to orientate public health action. An explanatory spatial analysis can then be applied assessing the relationship between the cluster and the neighborhood characteristics in order to reveal risk factors of the health event.</p>
Prerequisites	To install the trial version of abobe illustrator ® and Satscan ® (open source software) on your labtop.
Course learning objectives	<p>We have two mains learning objectives.</p> <ul style="list-style-type: none"> - The methods : to understand the principle concept of the spatial analysis and the main difference with classical regression model - The practice: <ul style="list-style-type: none"> o To use Satscan software in the appropriate way in order to realize the spatial analysis and interpret the results o To use ArcGis to represent the distribution of the data in respect of the graphic semiology.
UE structure (details of sequences : title /speaker/date/duration)	<p>Session 1:</p> <p>Day 1: I Health geography introduction Monday January 18th, 1:00 – 4:00 pm</p> <p>Day 2: Cartographic and GIS tools and graphic semiology – computer lab (ArcGIS) Tuesday January 19th, 9:00 -12:00 and 1:00 – 4:00 pm</p> <p>Session 2:</p> <p>Day 3: Spatial analysis Models - computer lab (ArcGIS and Satscan) and conference Wednesday January 20th, 9:00 -12:00 and 1:00 – 4:00 pm</p> <p>Day 4: Detection of a cluster - multivariate analysis - computer lab (ArcGIS and</p>

	Satscan) and conference. Thursday January 24th, 9:00 -12:00 and 1:00 – 4:00 pm Day 5: computer lab (ArcGIS and Satscan) - exam Friday January 25th, 9:00 -12:00 and 1:00 – 4:00 pm
Course requirement	Students will be encouraged to prepare lab sessions, and self-practice on the software.
Grading and assesment	Individual exam
Location	Columbia Global Centers/Europe, at Reid Hall, 4 Rue de Chevreuse, Paris
Readings	

Session #1	Introduction to health geography Cartographic and GIS tools - graphic semiology
Speakers	Lecturers: <ul style="list-style-type: none"> - Clelia Gasquet, professor of health geography - Séverine Deguen, professor in biostatistics
Learning Objectives	<p><i>At the end of the session, the students should be able to:</i></p> <ul style="list-style-type: none"> - To use the basic function of ArcGIS - To draw a map from different types of information using the appropriate graphic semiology - To interpret the map and to identify its limits
Duration	9 hours
Training methods	Lectures and ArcGIS practice

Session #2	Explanatory spatial analysis
Speakers	Lecturers: <ul style="list-style-type: none"> - clelia Gasquet, professor of health geography - Séverine Deguen, professor in biostatistics - Fei Gao, Phd student in public health - Wahida Kihal, postdoc in environmental health
Learning Objectives	<p><i>At the end of the session, the students should be able to:</i></p> <ul style="list-style-type: none"> - To understand what is a spatial analysis and its specificity in comparison with classical statistical analysis - To use the basic statistical function of stascan - To interpret the results from SatScan - To import result from Satscan to ArcGIS in order to visualize the principle results - To write a report summarising the principal results of a spatial analysis.
Duration	18 hours
Training methods	Lecture practice on ArcGIS and Satscan software Two conferences dealing with research projects.