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Introduction to geomatics for biodiversity conservation (3BL2198)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en biogéosciences	**Cours: 28 pg**	**Voir ci-dessous**	3
Master en biologie	**Cours: 28 pg**	**Voir ci-dessous**	3
Master en conservation de la biodiversité	**Cours: 28 pg**	**Voir ci-dessous**	3

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

Période d'enseignement:

- Semestre Automne

Equipe enseignante

Sébastien Boillat, Magnus Onyiriagwu

Contenu

The course deals with the fundamental concepts of Geographic Information Systems (GIS) with a practical focus. GIS are powerful tools for the handling of spatial data. They have many applications in the field of biology and ecology including species monitoring, nature conservation, ecosystem management, land planning and the understanding of nature-society interactions in space. In this course, students will learn about geographic information concepts, mapping principles and how to search for, query, create, edit and analyze spatial data. The course consists of a mix of lectures and practical exercises, homework, and data collection in the field. Participants will develop hands-on skills in using basic GIS tools and Global Positioning System (GPS), mainly focusing on the open-source software such as QGIS and its extensions.

Forme de l'évaluation

Evaluation in form of continuous control, with graded computer-based exercises and group presentations at the end of some practical sessions

Modalités de rattrapage

In case of failure registration in next session and re-submission of exercices

Documentation

• Lectures notes and tutorials for the practical exercises will be provided as pdf on Moodle
• Texbooks (optional complementary literature)
- Madry S (2021). Introduction to QGIS: Open Source Geographic Information System. Locate Press-
- Caloz R and Collet C (2011): Analyse spatiale de l'information géographique. Lausanne, Presses Polytechniques et Universitaires Romandes, collection Ingénierie de l'Environnement.
- Heywood I, Cornelius S and Carver S. (2011). An introduction to Geographical Information System (4th Edition). Pearson Prentice Hall/ Education Limited.

Forme de l'enseignement

computer-based practical labs, lectures and exercices

Objectifs d'apprentissage

Au terme de la formation l'étudiant-e doit être capable de :

- Prepare results as maps, pictures and charts
- Apply a range of spatial query and analysis techniques
- Structure the representation of biophysical and human variables in a GIS
- Use • Use GPS technology and find other spatial data sources
- Describe the nature of geographic phenomena with data
- Evaluate the impacts of cartographic information in biodiversity conservation contexts

Compétences transférables

- Analyse geographic data in biodiversity conservation contexts
- Illustrate results in form of maps
- Apply spatial reasoning
- Extract spatial data from different sources

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