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Spatial modelling and remote sensing of natural systems 1 (3BL2198)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en biologie	Cours: 28 ph	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

Dr. Felicia O. Akinyemi

Contenu

Spatial data is important at all levels of society as it underpins a vast range of everyday activities, analyses, and services. The first of two courses, this course introduces the fundamental concepts of Geographic Information Systems (GIS) and remote sensing (RS). GIS are powerful tools for the handling of spatial data and Remote Sensing is a major source of such data. It aims to familiarize students with spatial data concepts, geographic projections, data capture including the search for spatial data, basic spatial queries, and analysis of relevance to natural systems. The storage, analysis and map generation are also pertinent. The course consists of a mix of lectures and practical exercises, homework, and field-data collection. Participants will develop hands-on skills in using basic GIS/RS tools, Global Positioning System — GPS and/or Map of Life — MOL (a smartphone is required).

Forme de l'évaluation

CA and Examination graded:

1. Graded exercises come at the end of the practical sessions (50%).
2. An examination consisting of written and practical components is administered at the end of the course (50%)

Re-examination in case of failure must be registered for next exam session of same year. The exam is to be coordinated with the professor (not in Pidex). It will be a written exam on aspects of representing spatial data discussed in class.

Documentation

- Manuals for the practical exercises will be provided.
- Heywood I, Corneliu S and Carver S. (2011). An introduction to Geographical Information System (4th Edition). Pearson Prentice Hall/ Education Limited.
- Cavender-Bares J, Gamon JA, Townsend PA (eds) (2020). Remote Sensing of Plant Biodiversity. Springer Open: Cham Switzerland. Download from <https://link.springer.com/content/pdf/10.1007%2F978-3-030-33157-3.pdf>
- Chuvieco E, Huete A (2016). Fundamentals of Satellite Remote Sensing CRC Press ISBN 9780415310840, 448 Pages

Pré-requis

None. This course is part 1 (offered in Autumn Semester) and the second course is part 2 (offered in Spring Semester).

Forme de l'enseignement

Lectures and practicals

Objectifs d'apprentissage

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

- Describe the nature of geographic phenomena
- Explain the basic representation of biophysical, social variables in a GIS
- Apply a range of spatial query and analysis techniques
- Use GPS technology and find other spatial data sources, (e.g., species occurrence data from remote sensing)
- Present results as maps, pictures and charts of some applications

Compétences transférables

- Review spatial data sources
- Apply spatial reasoning
- Use geographic information technologies

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