Biodiversity assessment

Course title – Intitulé du cours	Biodiversity assessment
Level / Semester – Niveau /semestre	M2
School – Composante	Ecole d'Ingénieurs de PURPAN
Teacher – Enseignant responsable	Antoine BRIN
Other teacher(s) – Autre(s) enseignant(s)	
Lecture Hours – Volume Horaire CM	3
TA Hours – Volume horaire TD	6
TP Hours – Volume horaire TP	6
Course Language – Langue du cours	English
TA and/or TP Language – Langue des TD et/ou TP	English

Teaching staff contacts – Coordonnées de l'équipe pédagogique :

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Course Objectives – Objectifs du cours :

To understand the extent of biodiversity erosion and the relationships between biodiversity and ecosystem services.
To introduce practical problems and analytical challenges related to biodiversity assessment and conservation.

Prerequisites – Pré requis :

Basic statistical knowledge (Hypothesis testing, Correlation and Regression analysis).
Basics in R or Python programming language.

Practical information about the sessions – Modalités pratiques de gestion du cours :

During practical sessions, students will use the R software (https://www.r-project.org/).
For the fieldtrip session, students will have to bring suitable shoes and clothes for outdoor hiking.

Grading system – Modalités d'évaluation :

Oral presentation during the class (20%) and final exam (80%). The final exam will cover knowledge and understanding of practical problems and consists of a written report.

Bibliography/references – Bibliographie/références :

Diaz S, Malhi Y., 2022. Biodiversity: Concepts, Patterns, Trends, and Perspectives. Annual Review of Environment and Resources, Vol. 47:31-63.

IPBES (2019): Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. S. Díaz, J. Settele, E. S. Brondízio, H. T. Ngo, M. Guèze, J. Agard, A. Arneth, P. Balvanera, K. A. Brauman, S. H. M. Butchart, K. M. A. Chan, L. A. Garibaldi, K. Ichii, J. Liu, S. M. Subramanian,

G. F. Midgley, P. Miloslavich, Z. Molnár, D. Obura, A. Pfaff, S. Polasky, A. Purvis, J. Razzaque, B. Reyers, R. Roy Chowdhury, Y. J. Shin, I. J. Visseren-Hamakers, K. J. Willis, and C. N. Zayas (eds.). IPBES secretariat, Bonn, Germany. 56 pages. https://doi.org/10.5281/zenodo.3553579.

Sidemo-Holm, W., Ekroos, J., & Smith, H. G. (2021). Land sharing versus land sparing—What outcomes are compared between which land uses? *Conservation Science and Practice*, 3(11), e530. https://doi.org/10.1111/csp2.530.

Van Dyke F., Lamb R., 2020. Conservation Biology. Foundations, Concepts, Applications. Third Edition, Springer Nature, 613p.

Session planning – Planification des séances

Session 1 (1.5 h): An introductory lecture about key concepts of biodiversity conservation and overview cutting-edge research topics in these fields, related to policy and economy.
Session 2 (3h): Oral presentation of students based on scientific papers about biodiversity conservation issues and discussion.
Session 3 (1.5 h): Case studies on agroecosystems with practical data analyses.
Session 4 (1.5 h): Case studies on forest ecosystems with practical data analyses.
Session 5 (1.5 h): Case studies on aquatic ecosystems with practical data analyses.
Session 7 (6 h): Field trip to gain hands-on experience of biodiversity assessment in two major types of ecosystem (prairie and forest).

Distance learning – *Enseignement à distance :*

Not provided.