Ecological challenges : Planetary Boundaries

**ECTS** : 2

**Volume horaire** : 18

**Description du contenu de l'enseignement :**

The first-year (L1) course unit provides an understanding of the environmental and systemic challenges posed by the three major ecological crises: climate, biodiversity, and the over exploitation of natural resources in a finite world. It presents the nature and anthropogenic causes of these global and systemic issues, as well as the connections between them.

**Course themes will be allocated over 9 sessions:**

**Climate and energy:**

- Climate change.
- Water cycle
- Fundamentals of energy
- The Kaya equation and critiques of technologies

**Biodiversity and ecosystems:**

- Biodiversity and ecosystem services
- Climate change and biodiversity collapse: what do we know and how do we know it?

**Resources and society:**

- Natural resources and their geopolitical implications
- Environmental justice
- Ecological economics

**Human–nature relations:**

- History of human–nature interactions

**Action levers:** climate, biodiversity, and resources

**Compétence à acquérir :**

**Adopt a systemic approach:**

- Develop a systemic understanding of sustainability challenges through a multi- and transdisciplinary perspective.
- Be able to critique the human–nature divide and reflect on the fact that humans are part of nature, not separate from it.
- Know how to identify and categorise the services provided by ecosystems.
- Identify and analyse the various causes of social and environmental inequalities.

**Project oneself into the future:**

- Become aware of what is at stake: what crossing planetary boundaries implies.
- Situate current Earth-system trends and future projections in relation to past developments.
- Understand how models and scenarios are constructed.

**Mode de contrôle des connaissances :**

Ma Petite Planète Challenge, group presentations, final MCQ

**Bibliographie, lectures recommandées :**

Figueres, C & Rivett-Carnac T. “The Future we Choose.” Manilla Press, 2020

Robinson, M. “Climate Justice.” Bloomsbury Publishing, 2018.

Thunberg, G. “The Climate Book.” Penguin Books, 2022