

SYLLABUS

Name of the course:	Ecological challenges from a multidisciplinary perspective			
Teacher:	Alexandre Berthe*, together with Nathalie Blanc** and David Flacher***			
University / organisation:	* Université Rennes 2 ** Université Paris Cité *** Université de technologie de Compiègne			
Language of teaching:	English			
ECTS:	3 + potentially additional ECTS (in relation to tutoring of S4 obligations)			
Semester (S1, S2, S3 or S4):	<input type="checkbox"/> S1	<input type="checkbox"/> S2	<input checked="" type="checkbox"/> S3	<input checked="" type="checkbox"/> S4
Teaching method(s):	<input checked="" type="checkbox"/> Lecture courses		<input checked="" type="checkbox"/> Flipped classroom	
	Other:	Group projects		
Type(s) of evaluation:	<input type="checkbox"/> Sitting exam		<input checked="" type="checkbox"/> Written report	
	<input checked="" type="checkbox"/> Oral defence		<input checked="" type="checkbox"/> Group project	
	Other comments:	/ Group project with a presentation and a report		
Expected deadline(s) for the evaluation(s)	Defence by January 30			
Expected date of final results:	February			
Summary of the content:	<p>It is particularly challenging to define and implement scenarios that ensure an ecological bifurcation. A lack of knowledge, difficulties in identifying pathways for bifurcation, significant inequalities within and between countries, and diverging interests are some of the key reasons why current policies fail to meet the objectives set by the IPCC and IPBES. While the habitability of Earth is at stake, this module aims to develop realistic scenarios and narratives that could lead to real transformative effects.</p> <p>In particular, the module has <u>three main objectives</u>:</p> <ol style="list-style-type: none"> To provide the entire cohort with a shared foundation on ecological challenges; To engage you in group work on transition/bifurcation scenarios, capitalizing on the diversity of backgrounds and interests within the cohort. The scenarios and narratives are designed to be <u>realistic, well-documented, substantiated, and useful for promoting transformative change.</u> Storytelling and character development will be key elements; 			

SYLLABUS

3. **To foster concrete and lasting impact by requiring outcomes that include dissemination of your work** (potentially for advocacy to citizens, policymakers, companies, etc.) **and by asking you to create materials that future cohorts** can build upon for their own scenario development.

The required work, beyond active participation in the sessions, consists of the following:

By the beginning of October:

- **Form a group of 4-5 students**, preferably with a mix of majors and/or regional contexts to benefit from diverse perspectives and backgrounds;
- **Choose a topic** (a specific and sufficiently narrow research question) for a transition/bifurcation scenario. The topic can be one suggested by potential supervisors or one you propose, subject to approval by the course instructor. Topics can focus on a sector, region, population group, or any other relevant subject.

By mid-November:

- **Select a methodology**, which can be a single approach or a combination of methods (including, if relevant, fieldwork).

This can include **economic modelling** (SFC, IAM, ABM, etc.), **sociological research** (e.g., interviews), **data analysis**, **foresight** (using established methodologies), **collaboration with NGOs or grassroots initiatives** (e.g., organizing training or workshops, designing a scenario for their own transition), **scientific mediation or expertise** (e.g., responding to a local authority request regarding ecological bifurcation), **artistic work**, **essays**, **podcasts**, **documentary films**, and more.

- **Begin working!** The project can align with other coursework (econometrics, MIP, or any other modules) or part of your master's thesis, but it should culminate in a scenario for the "Ecological challenges" module.

By the end of January:

- **Present the scenario in a relevant format targeting the chosen audience.** A short in-class presentation of the narratives will be organized by the end of January.
- **Produce a 180-second video aimed at a wider audience.** This will be shared on social media and contribute to laying the groundwork for future cohorts.

SYLLABUS

	<ul style="list-style-type: none"> • Submit a short Appendix (maximum 10 pages) as part of the evaluation and documentation for future students. The Appendix should: <ul style="list-style-type: none"> ○ (i) Position your work relative to previous studies, describing your choices and providing a critical perspective on your assumptions and results; ○ (ii) List the sources used and explain how they were applied; ○ (iii) Include a table detailing each student's contributions to the project; ○ (iv) Describe how artificial intelligence was used in your work. <p>Beyond the 10-page limit, you may also submit any additional materials you feel would be valuable for future cohorts (though these will not be graded).</p> <p>Overall, the expected workload is around 50-60 hours for each student in the group.</p> <p><u>During the master's conference in July</u>, a collective discussion will be organized to review the outcomes of the groups.</p>
<p>Indicative list of lectures:</p>	<p>The module is made of two parts and the sessions will be taught by different professors. The professors responsible for the course will be Alexandre Berthe. He will be assisted by two colleagues.</p> <ol style="list-style-type: none"> 1) Ecological challenges approached through other disciplines than economics. This includes a series of (2-hour) sessions that covers different issues. An indicative list (around 18 hours overall) is: <ul style="list-style-type: none"> • Introduction • A critical approach to foresight • Biodiversity • Climate change and the Science behind the findings and projections • Planetary boundaries • Socioeconomic metabolism • Ecological geography and habitability • One health • Geopolitics and ecological challenges 2) Ecological challenges approached through economics. This includes a series of (3-hour) sessions that covers different issues (around 18 hours overall). <p>The presence is mandatory (not more than 2 unjustified absences are allowed).</p>
<p>Short bibliography:</p>	