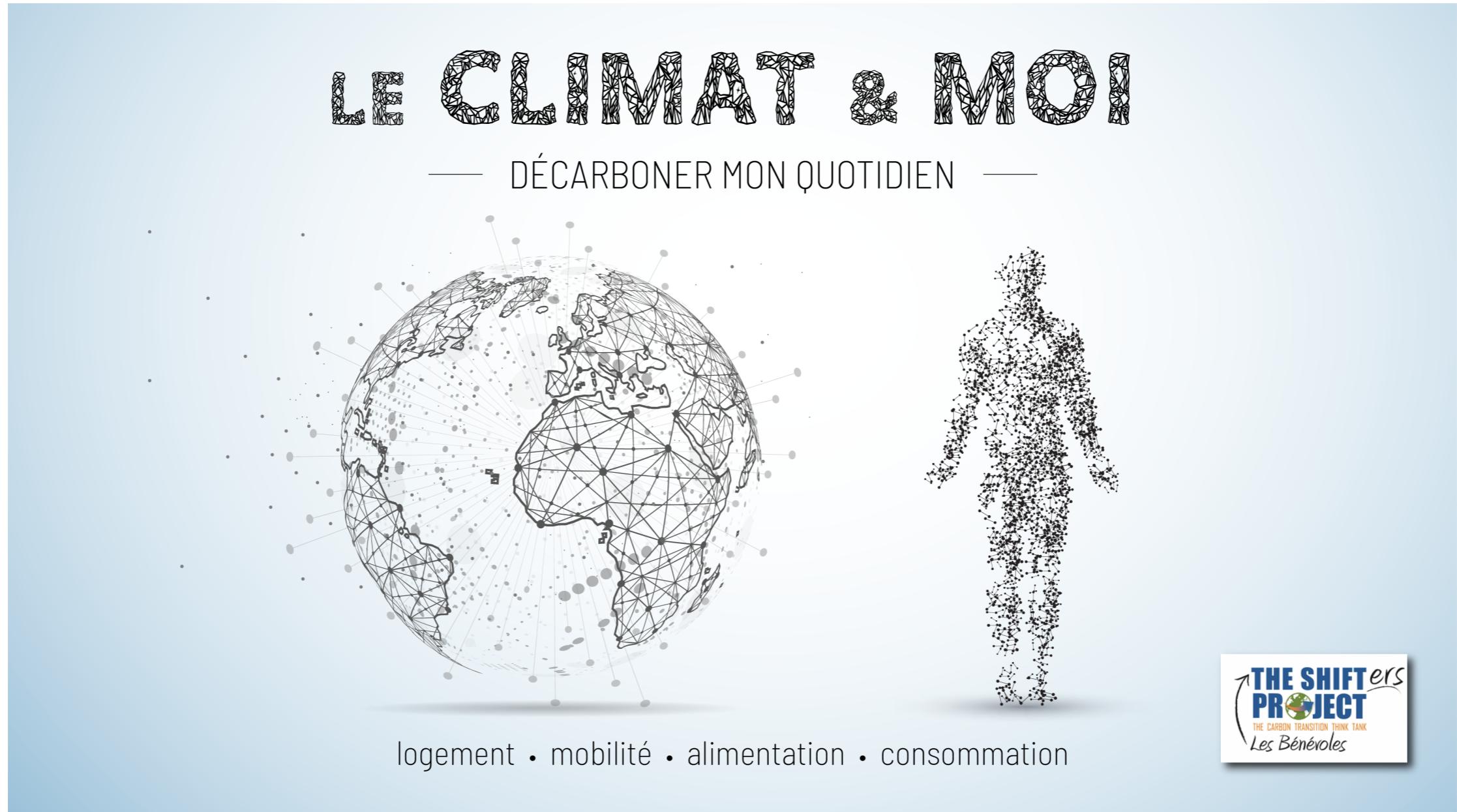


# ENVT3065 Sustainability challenges

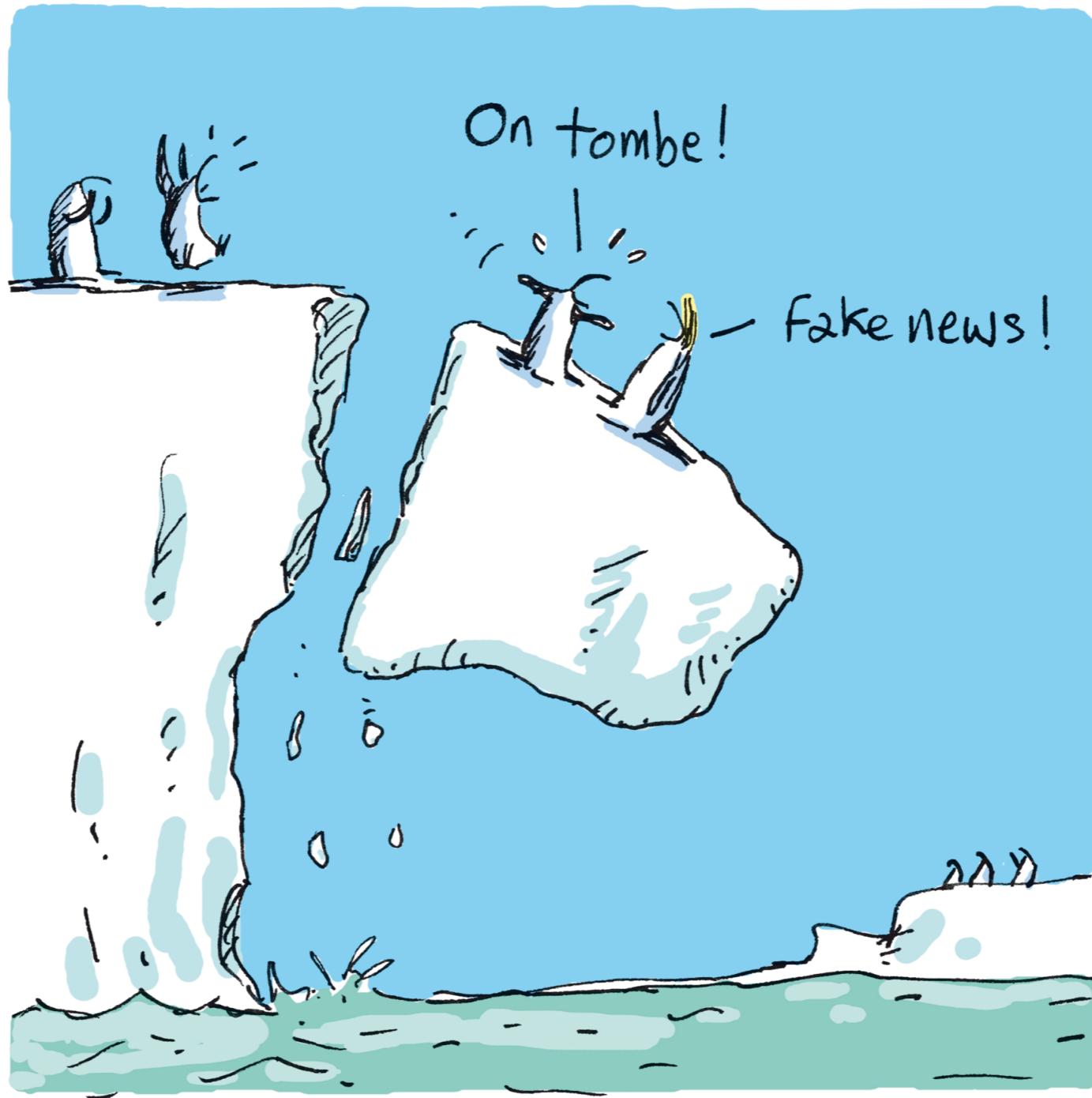
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Credits: <https://theshiftproject.org/equipe/#benevoles>

# ENVT3065 Sustainability challenges

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# **ENVT3065 Sustainability challenges**

**Whats is for you sustainability ?**

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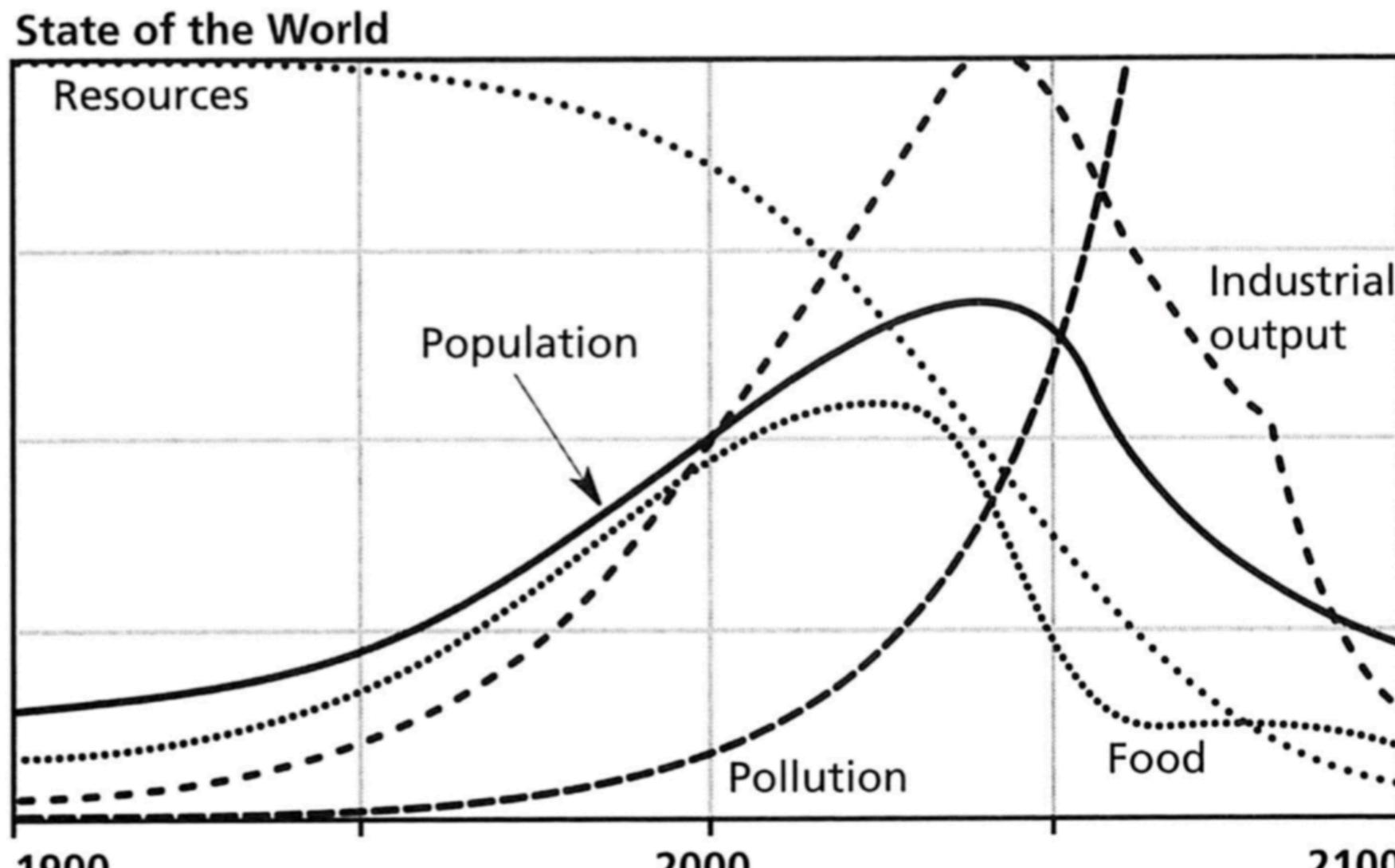


**TODO: <https://www.wooclap.com/fr/>**

# ENVT3065 Sustainability challenges

Limits to growth: is it possible to achieve sustainability ?

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Source: Limits to growth - The 30 year update

Credits: <https://www.clubofrome.org/publication/the-limits-to-growth/>

# ENVT3065 Sustainability challenges

## Motivations

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IPCC reports are more and more alarming -> **environmental** challenge.

Fossil energies are not unlimited -> **energy** challenge.

Raw materials are not unlimited -> **raw material** challenge.

There is an urgent need to act to **meet the sustainability challenges**.

**Education** is a powerful way to achieve this goal. We need engineers:

- aware of the complex challenges and capable of understand, analyse and propose practical solutions
- capable of systemic approach that combine several fields: climatology, energy, ICT, economy, mobility, psychology, etc

# ENVT3065 Sustainability challenges

## Instructors & teaching assistant

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**Jonathan Dumas**  
PhD candidate & Teaching  
assistant  
Microgrids & local energy  
communities  
Applied Science Faculty  
*Active member of the  
Shifters Belgium*  
*Active member of the ReD  
within the sustainability  
group*



**Bertrand Cornélusse**  
Associate professor  
Microgrids & local  
energy communities  
Applied Science  
Faculty



**Xavier Fettweis**  
Research Associate F.R.S.-  
FNRS  
Climatologist  
Science Faculty



**Sylvain Quoilin**  
Research Associate F.R.S.-  
FNRS.  
Smart Energy System  
Applied Science Faculty

# ENVT3065 Sustainability challenges

## Schedule & TEASER

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Schedule and materials [\*\*\*github !\*\*\*](#)

**TEASER !**

# ENVT3065 Sustainability challenges

Climate & digital collages !

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<https://climatecollage.org/>



<https://digitalcollage.org/>

# ENVT3065 Sustainability challenges

## Climate collage

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42 cards representing the different components of climate change & collaboratively work to identify cause and effect relationships based on IPCC reports.

A 3-hour-long workshop, participants gather around a table in teams of 4 to 8.

## TEASER

### The 4 stages of the workshop

- 1** **1h - BUILD** : Discover and link the cards to create the collage.
- 2** **1h - CREATE** : Take ownership of the collage by adding illustrations and a title.
- 3** **15' - PRESENT** : Deliver a concise presentation to consolidate your knowledge.
- 4** **45' - DEBRIEF** : Share with other players your feelings, opinions, questions and solutions.



# ENVT3065 Sustainability challenges



## Digital collage

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The Digital Collage is a fun and collaborative 3 hours' workshop centered on collaboration and collective intelligence (similar in format to The Climate Collage).

<https://fresquedunumerique.org/>

### How the workshop operates



1st part :  
**Comprehension**



2nd part :  
**Creativity !**



3rd part :  
**Debriefing**



4th part :  
**Solutions**

# ENVT3065 Sustainability challenges

## Schedule

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### Lecture 1:

- kick-off presentation [30 min]
- ice breaker: each student present himself and ask to others what is sustainability for him, why he/she is there etc) [30 min]
- presentation: sustainability challenges [1h30]
- Q&A, debate or read and analyze a scientific article on this topic such as Planetary boundaries: Guiding human development on a changing planet [1h00]

### Lecture 2:

- activity: climate collage (by groups of 8) [3h00]
- activity: in small groups (4-5) imagine new cards [1h00]

### Lecture 3:

- presentation: climate change (X. Fettweis) [2h00]
- activity: Q&A and debate or discuss IPCC sr15 SPM [2h00]

# ENVT3065 Sustainability challenges

## Schedule

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### Lecture 4:

- part 1 (presentation) Climate change and psychology by an expert [1h30]
- part 2 (presentation) Interactions between climate, economy & energy or (activity) discuss the video « Modéliser l'avenir de l'humanité - Heu?reka » [1h30]

### Lecture 5:

- presentation: fossil energy, issues for the society and industry [1h00]
- activity: analyze of the report <https://theshiftproject.org/en/article/eu-oil-depletion-2030-study/> [2h00]
- activity: presentation in small groups of the report [1h00]

### Lecture 6:

- Digital collage [3h00]
- activity: in small groups (4-5) imagine new cards [1h00]

# ENVT3065 Sustainability challenges

## Schedule

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### Lesson 7:

- presentation: sustainable ICT [1h00]
- activity: analyze of the report analyze the report Lean ICT [2h00]
- activity: presentation in small groups of the report [1h00]

### Lesson 8:

- presentation : carbon footprint or discussion on the video <https://youtu.be/mj9Fma0dRoE> « Le capitalisme peut-il faire face aux défis environnementaux ? - Heu?reka « [1h00]
- activity: myC02 by [2h00] (François Rigo)
- activity : analyze the articles Transition énergétique et (dé)croissance économique and "Global potential of wind and solar energy with physical and energy return on investment (EROI) constraints; application at the European level (EU 28 countries)." [1h00]

# ENVT3065 Sustainability challenges

## Schedule

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### Lecture 9:

- presentation: You me & climate [1h00]
- activity: debate on the conference [1h00]
- activity: analyze in small groups the FABI Belgium Energy Outlook 2050 or IEA net zero emission [2h00]

### Lecture 10:

- presentation: Energy systems modeling (S. Quoilin) [2h00]
- activity: to be defined [2h00]

### Lecture 11:

- presentation : Energy management in residential houses (B. Cornélusse) [2h00]
- activity : to be defined [2h00]

### Lecture 12:

- activity : build in small groups (2-3) the collage of this lesson [3h00]
- activity : peer grading of the collages [1h00]

# **ENVT3065 Sustainability challenges**

## **Evaluation**

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Build your own collage of this lesson and present it (groupe of 2-3) [50 %]

Participations to collages (climate, numeric, and mobility) [25 %]

Participations to activities of the lessons [25 %]

# ENVT3065 Sustainability challenges

Questions ???

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