

## Transition and technology policy – MGT 408

**Nb of credits - 2**

Fall, 2021

Room BS 260

**Prof. Foray Dominique**

CDM – ODY – station 5 –

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**Dr. Claudia Pellegrin**

**Benoît Cornet**

**Dr. Charles Ayoubi**

Guest lecturers

(20 October)

Course website/moodle:

EPFL Moodle page MGT 408

Office hours:

Friday – 13:00 – 16:00 (from Nov. 12 to Dec. 24)

COURSE OVERVIEW

This course addresses the issue of designing policies for socio-economic transitions to address societal Grand Challenges in the area of climate, environment, energy and sustainable development. It aims at providing a policy tool box – dealing with incentivizing innovation, regulating the economy, involving society, funding strategic complementarities and governing grand transformation – while supporting students case development about designing and writing the first pillars of a transformation roadmap to address one specific Grand Challenge.

### DIDACTIC APPROACH AND CLASS ATTENDANCE

The course will alternate lectures on Grand Challenge policies with guided work to support individual (or team) project developments (on writing a strategic document on the first pillars of a policy roadmap for a specific GC).

### LEARNING OUTCOMES

By the end of the course, the student must be able to: Define the key concepts of externalities and market failures, understand the problematic of economic growth versus green growth and de-growth, choose appropriate policy tools to support innovation, assess and evaluate innovation policies, develop a policy roadmap.

### MATERIALS

Power point presentations, readings (the list will be communicated at the beginning of the course)

### FORM OF EXAMINATION & GRADING

Individual work – 25% (writing a one pages essay as a critical comment of a scientific paper on economic growth, green growth or degrowth)

Final project (team) – 75% (writing a policy brief on the essential pillar of a roadmap for an innovation policy to address a specific grand challenge in the area of climate, environment, energy and sustainability)

## COURSE SCHEDULE: A QUICK OVERVIEW OF THE SESSIONS

Session	Date	Topics	Assignment Submissions
1.	Nov 12	Introduction – Perspectives on Grand Challenges	Choose your project topic
2.	Nov 19	Innovation economics, measurement & innovatisation	Discussion of project topics
3.	Nov 26	From market failures and externalities to policies <i>Claudia Pellegrin</i>  Essential pillars of a roadmap	
4.	Dec 3	Changing technologies – involving society <i>Charles Ayoubi</i>	Get “growth” papers to be commented for individual essay
5.	Dec 10	Changing the economy – Funding complementarities <i>Benoit Cornet</i>	
6.	Dec 17	Interactive session on growth or degrowth	Submission of essays by small teams
7.	Dec 24	Better rules for policies - Conclusion	
8.			Project - Policy brief

## DETAILED COURSE OUTLINE

### **week 1 – Grand Challenges and Mission oriented policies**

- Perspectives on Grand Challenges
- Why is innovation central (not only technology) and so what are the differences?
- Contextualizing Grand Challenges in the problem-solution space
- Choosing your project (*a policy roadmap for a specific Grand Challenge*) for your teamwork

### **week 2 – Innovation economics**

- Innovation as an economic discovery
- Measuring innovation
- Innovation *versus* Technological achievement
- *Discussion on project topics – what is your Grand Challenge?*

### **week 3 – From market failures to innovation policies – Claudia Pellegrin**

- Negative externalities
- Knowledge spillovers
- A rationale for innovation policy
- Mission-oriented innovation policy
- Green growth or degrowth – introduction to the interactive session
- Essential pillars of a roadmap
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**week 4 – First pillar of the roadmap - Changing the technology**

- Promoting innovation to solve Grand Challenges – the toolbox
- – **Second pillar of the roadmap- Changing society – Charles Ayoubi**
- Involving citizen and raising public awareness to change social practices and lifestyle
- *Paper assignment (growth-degrowth) for small teams essays*

**week 5 – Third pillar of the roadmap - Changing the economy**

- Fixing externalities
- Redirecting innovation beyond successful business models
- Exploring new trade offs between financial gains and social impacts
- Eliminating industries
- **Fourth pillar of the roadmap - Funding strategic complementarities – Benoit Cornet**
- The concept of strategic complementarities
- Financial engineering solutions

**week 6 – Discussion on economic growth, green growth and de-growth – based on student's individual essays**

- Introduction to the discussion
- *General discussion*
- *Q&As on the project*

**week 7 - Governing the big transformation**

- Better rules for policy: embeddedness, discipline and public accountability
- Policy monitoring and evaluation
- Conclusion - The Hidden Hand
- *Q&As on the project*