



## Course and Examination Fact Sheet: Spring Semester 2023

### 8,278: Environmental Economics

ECTS credits: 4

#### Overview examination/s

(binding regulations see below)

Decentral - Group examination paper with presentation (all given the same grades) (40%)

Examination time: term time

Decentral - Active participation (10%)

Examination time: term time

Decentral - examination paper written at home (individual) (30%)

Examination time: term time

Decentral - examination paper written at home (in groups - individual grades) (20%)

Examination time: term time

#### Attached courses

Timetable -- Language -- Lecturer

[8,278,1.00 Environmental Economics](#) -- Englisch -- [Bonev Petyo](#) , [Keuschnigg Christian](#)

#### Course information

#### Course prerequisites

Prerequisites are twofold. First, it is recommended that participants have attended a course in econometrics / data analytics and have at least basic knowledge of treatment evaluation. Furthermore, it is recommended that participants have good knowledge of applied microeconomics and dynamic macroeconomic analysis.

#### Learning objectives

Students learn how to (1) evaluate econometrically environmental policy effects, (2) how to determine optimal policy design, (3) how to interpret the rationale and consequences of environmental policy choices, and (4) how to develop macro models of climate change for quantitative policy evaluation.

#### Course content

This Master level course develops the most important concepts of environmental economics and introduces students to state of the art research. The first part deals with individual behavior as a response to environmental policies. Particular attention is paid to how bounded rationality impacts decisions and behavior and how this generates unexpected side effects of policies. The second part explores the macroeconomics of climate change and resource depletion. It introduces the key policy levers ranging from green taxes, emission trading, abatement policies and green innovation.

##### Part I: Environmental Policy and Individual Behavior(PB)

- **Introduction:** psychological aspects of economic policies (rationality, bounded rationality, and environmental policy).
- **Green nudges:** understanding green defaults (such as electricity payment plans), limited attention vs. rational inattention, framing effects, empirical evaluation of green nudges, ethical discussion on the right of the state to nudge ("Libertarian paternalism").
- **Behavioral spillovers:** side effects of environmental policies based due to mental accounting, attention spillovers and cognitive dissonance; econometric evaluation of environmental behavioral spillovers; implications for policy design.
- **Social norms and other information-based policy tools:** effects of policies that provide information about behavior of peers (such as neighbors and colleagues), distinguishing between altruism, warm glow and stigma.
- **Crowding out of intrinsic motivation:** study of economic incentives might interact and crowd in or out intrinsic



- motivation through taking away individual autonomy or leading to market-wise thinking and moral disengagement.
- **Effectiveness of environmental policies:** policy take-up, habit formation, econometric tools for policy targeting and optimal policy design.
  - **Part II: Macroeconomics of Climate Change (CK)**
  - **Green Taxes and Regulations:** environmental externalities in consumption and production (demand and input substitution); green taxes and corrective subsidies (Pigouvian); Carbon pricing; green regulations (emissions trading, liability rules).
  - **Government Investment:** abatement policies (cleaning up/repair/damage control etc.); cost benefit analysis of environmental projects (public goods); corrective subsidies on private investments and inputs.
  - **Green Innovation:** technological progress, growth, and the environment; basic R&D of the government; private R&D for environmentally friendly technology.
  - **Quantitative Models of Climate Change:** variants of DSGE models with environmental stocks (pollution, renewable and exhaustible resources); application of theoretical concepts for simulation analysis; students develop some extensions.

## Course structure and indications of the learning and teaching design

The course is structured as weekly lectures. Students prepare each week in advance the topic that will be presented in the lecture. The preparation consists of a mandatory reading part and occasionally of short topic-related presentations.

## Course literature

### Part I.

There will be lecture notes distributed at the beginning of the lecture. Below there is a list of topic-specific mandatory reads. Further references will be distributed in due time.

### General:

Kahneman, D. Maps of bounded rationality: Psychology for behavioral economics. *Amer. Econ. Rev.* 2003

1. **Green nudges:** Schubert, C. Green nudges: Do they work? Are they ethical?, *Ecological Economics* 2017 Chetty, R. Behavioral economics and public policy: a pragmatic perspective, *Amer Econ Rev. papers and proceedings* 2015 Gigerenzer, G. 2015 On the Supposed Evidence for Libertarian Paternalism, *Review of Philosophy and Psychology*, 2015
  2. **Behavioral spillovers** Maki et al, Meta-analysis of pro-environmental behaviour spillover. *Nat. Sustain.* 2019 Alacevich et al., Pro-environmental interventions and behavioral spillovers: Evidence from organic waste sorting in Sweden, *Journ. Env. Econ. Mngmnt* 2021
  3. **Social Norms** Allcott et al. The short-run and long-run effects of behavioral interventions: Experimental evidence from energy conservation, *Amer Econ Rev* 2014
  4. **Policy effectiveness:** take-up, habit formation, econometrics of optimal policy design Vollaard et al. Breaking habits. *Working paper*, 2021 Knaus, M. Double Machine Learning based Program Evaluation under Unconfoundedness, *Econometrics Journal* forthcoming
  5. **Crowding out of intrinsic motivation**
- Bowles et al. Economic incentives and social preferences, *Journ. Econ. Lit.*, 2012
- Bonev et al. The effect of environmental policies on pro-environmental behaviors and preferences, *Working Paper*, 2022

### Part II. To be included in due course.

Theory will be developed in lecture notes and by students in solving assigned problem sets. A list of key empirical papers relating to the topics covered will be listed at the beginning on Canvas. Students will prepare a research summary of one paper as part of the self-studies.

## Additional course information

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## Examination information

### Examination sub part/s

#### 1. Examination sub part (1/4)

##### Examination time and form

Decentral - Group examination paper with presentation (all given the same grades) (40%)

Examination time: term time

##### Remark

Term project and presentation on Part I

##### Examination-aid rule

Free aids provision

Basically, students are free to choose aids. Any restrictions are defined by the faculty members in charge of the examination under supplementary aids.

##### Supplementary aids

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##### Nature of examination

analog

##### Examination languages

Question language: English

Answer language: English

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#### 2. Examination sub part (2/4)

##### Examination time and form

Decentral - Active participation (10%)

Examination time: term time

##### Remark

Topic preparation and a 5 min presentation, PART I

##### Examination-aid rule

Free aids provision

Basically, students are free to choose aids. Any restrictions are defined by the faculty members in charge of the examination under supplementary aids.

##### Supplementary aids

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##### Nature of examination

analog

##### Examination languages

Question language: English

Answer language: English

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#### 3. Examination sub part (3/4)

##### Examination time and form

Decentral - examination paper written at home (individual) (30%)



Examination time: term time

## Remark

Problem set, 4 problems, PART II of the course

## Examination-aid rule

Free aids provision

Basically, students are free to choose aids. Any restrictions are defined by the faculty members in charge of the examination under supplementary aids.

## Supplementary aids

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## Nature of examination

analog

## Examination languages

Question language: English

Answer language: English

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## 4. Examination sub part (4/4)

### Examination time and form

Decentral - examination paper written at home (in groups - individual grades) (20%)

Examination time: term time

### Remark

A 3-page summary of a paper, PART II

### Examination-aid rule

Free aids provision

Basically, students are free to choose aids. Any restrictions are defined by the faculty members in charge of the examination under supplementary aids.

### Supplementary aids

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### Nature of examination

analog

### Examination languages

Question language: English

Answer language: English

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## Examination content

Examination content PART I:

1. Group term projects: students are divided into groups and write a short (up to 10 pages) term paper. The project consists of either (1) performing and evaluating a small randomized experiment that replicates an already published experiment or (2) replicating an already published paper with an existing dataset. The precise content depends on the project and is on one of the topics Green Nudges, Social Norms, Behavioral Spillovers, Crowding effects.
2. Each week, students (in groups) prepare a 5 min pitch which gives a short overview of concepts and findings of the current topic. Which group presents will be chosen per random at the beginning of each lecture. The presentation is followed by a critical discussion, which occasionally will be formed as a debate.



## PART II

1. Each week in the second part of the semester, a problem set will be distributed. Students will have to solve it at home and hand it in the week after.
2. Each student will have to prepare a 3-page summary of a scientific empirical paper, which will be handed in before the end of the semester at a date announced in class.

## Examination relevant literature

Topics to be presented in the weekly presentations for the first part of the semester will be distributed at the beginning of the course. Term projects will be randomized among the students in lecture 1. Assignment of empirical papers to be summarized in the second part of the semester will be given at the beginning of the second part of the semester.

The precise literature for each student depends on the randomly assigned assignments and will be announced when assignments are given.

### Please note

Please note that only this fact sheet and the examination schedule published at the time of bidding are binding and takes precedence over other information, such as information on StudyNet (Canvas), on lecturers' websites and information in lectures etc.

Any references and links to third-party content within the fact sheet are only of a supplementary, informative nature and lie outside the area of responsibility of the University of St.Gallen.

Documents and materials are only relevant for central examinations if they are available by the end of the lecture period (CW21) at the latest. In the case of centrally organised mid-term examinations, the documents and materials up to CW 12 are relevant for testing.

Binding nature of the fact sheets:

- Course information as well as examination date (organised centrally/decentrally) and form of examination: from bidding start in CW 04 (Thursday, 26 January 2023);
- Examination information (regulations on aids, examination contents, examination literature) for decentralised examinations: in CW 12 (Monday, 20 March 2023);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised mid-term examinations: in CW 12 (Monday, 20 March 2023);
- Examination information (regulations on aids, examination contents, examination literature) for centrally organised examinations: two weeks before the end of the de-registration period in CW 15 (Monday, 10 April 2023).