



STUDY PROGRAMME

EEIB

ACADEMIC YEAR

2020 - 2021

SEMESTER

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COURSE TITLE

SUSTAINABLE INFRASTRUCTURE ECONOMICS AND FINANCE

COURSE PROFESSOR

H. GOLDSMITH; S. HYZYK & P-E. NOEL

COURSE ASSISTANT

Sisi ZHANG

NATURE OF COURSE (COMPULSORY, OPTIONAL)

COMPULSORY

LANGUAGE OF INSTRUCTION

ENGLISH

ECTS CREDITS

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1. COURSE OBJECTIVE

The objective of the course is to give students an understanding of the policy background, technical issues, economic rationale, and financial structuring of sustainable and resilient infrastructure projects to address global climate, environmental and social crises. The latest EU Policy developments, including the Green Deal, will be covered extensively.

2. LEARNING OUTCOMES

At the end of this course, the student will be able to:

- Describe the main trends in European and global policy driving infrastructure investments towards the triple bottom line of economic, social, and environmental sustainability;
- Describe the historical evolution of market and non-market based models of infrastructure project development and delivery;
- Explain the different project selection and design approaches applying appropriate sustainability and resilience criteria, including an appreciation of the associated risks in different sectors;
- Describe the main problems of Just Transition from the sectorial and territorial point of view.
- Explain basic principles of infrastructure programme and project cycle management;
- Describe the main infrastructure financing instruments used by public and private sector promoters;
- Understand the basic principles underpinning the structuring of project and infrastructure finance as well as Public-Private Partnerships (PPPs)
- Describe the main elements of the EU Green Deal and the principles of the EU Taxonomy for sustainable finance.

The learning outcomes for this course tie in with the following learning outcomes for the European



Economic Studies programme:

1. Describe, explain and illustrate the normative assumptions, implications and limitations of business theory;
2. Use their knowledge of business theory to define corporate strategy and assess corporate structures;
3. Be autonomous in their preparation and review of materials for the courses as well as in their completion of assignments bearing different requirements in terms of methodology, workload and evaluation of the final work;
4. Work together in groups to solve problems, share tasks, prepare assignments, go through case studies and make presentations;
5. Think innovatively and provide constructive analytical commentary as well as potential recommendations on the evolution of the EU and its possible future development.

3. COURSE CONTENTS

Module Title	Lecturers
1. Introduction and policy context (Triple bottom line; Paris Agreement; SDGs; infrastructure policy evolution). Case studies.	Hugh Goldsmith
2. Sustainable infrastructure programme and project cycle, economics, risk and resilience. Just Transition. Case studies.	Sebastian Hyzyk
3 Infrastructure financing techniques; Project Finance; EU Taxonomy; Green Bonds. Case studies.	Pierre Emanuel Noel
4. GROUP PRESENTATIONS Course Summary and Review	Hugh Goldsmith, Sebastian Hyzyk, Pierre Emanuel Noel

4. TEACHING METHOD(S)

Contact hours: 16h.

Method: The course will be taught as a seminar combining lectures and group discussion based on pre-reading. Case studies will be used extensively in classes, drawing on the Lecturers experience as practitioners. Students are expected to do the pre-reading and watch any online material, which they should be ready to discuss in class, where active participation is expected. In case teaching is online due to on-going Covid restrictions, additional instructions will be provided. Students will also have to prepare assessed group presentations on an infrastructure project, which will be presented by the group during the final class.

5. COURSE MATERIAL

Lecture notes (PPT presentations) will be distributed or made available online before each session. Depending on the Covid situation, some lectures may be pre-recorded so that students can watch them in their own time.

There is no single textbook for this course.

Below is a list of required background readings (other material may be indicated online):



Session 1

- Goldsmith, H. (2014). The Long-Run Evolution of Infrastructure Services, CESifo Working Paper, No. 5073, Center for Economic Studies and ifo Institute (CESifo), Munich.
https://www.econstor.eu/bitstream/10419/105088/1/cesifo_wp5073.pdf
- Bak, C., Bhattacharya, A., Edenhofer, O., & Knopf, B. (2017). Toward a Comprehensive Approach to Climate Policy, Sustainable Infrastructure and Finance. Centre for International Governance Innovation, Policy Brief 106. Canada.
<https://www.cigionline.org/sites/default/files/documents/PB%20no.106web.pdf>

Session 2

- Kivilä J, Martinsuo M, Vuorinen L (2017). Sustainable project management through project control in infrastructure projects. International Journal of Project Management, 35 (6), pp 1167-1183, <https://doi.org/10.1016/j.ijproman.2017.02.009>
- International Labour Organisation (2015). Guidelines for a just transition towards environmentally sustainable economies and societies for all, ILO, Switzerland.
https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_432859.pdf
- European Environment Agency (2020), Europe's state of the environment 2020, EEA.
<https://www.eea.europa.eu/highlights/soer2020-europes-environment-state-and-outlook-report>

Session 3

- EU Technical Expert Group on Sustainable Finance (2019), Taxonomy Technical Report. Chapter 1 Recent Developments. https://ec.europa.eu/knowledge4policy/publication/sustainable-finance-teg-final-report-eu-taxonomy_en
- Bielenberg, A., Kerlin, M., Oppenheim, J., & Roberts, M. (2016). Financing change: How to mobilize private-sector financing for sustainable infrastructure. McKinsey Center for Business and Environment.
http://newclimateeconomy.report/2015/wp-content/uploads/sites/3/2016/01/Financing_change_How_to_mobilize_private-sector_financing_for_sustainable_infrastructure.pdf
- PPP Motivations and Challenges for the Public Sector - Why (not) and how, EPEC, October 2015
https://www.eib.org/attachments/epec/epec_ppp_motivations_and_challenges_en.pdf

Other background reading and useful references

- Ainger, C. M., & Fenner, R. A. (2014). Sustainable infrastructure: principles into practice. London, UK: ICE publishing.
- Bhattacharya, A., Oppenheim, J., & Stern, N. (2015). Driving Sustainable Development through Better Infrastructure. Brookings Global Economy and Development, Working Paper, 91.
<https://www.economic-policy-forum.org/wp-content/uploads/2015/09/Session-1-Bhattacharya-PPT-Driving-Sustainable-Development-Through-Better-Infrastructure-ThinkWeek2015.pdf>
- Ehlers T (2014). Understanding the challenges for infrastructure finance. BIS Working Papers No. 454 - <http://www.bis.org/publ/work454.pdf>
- European Commission (2014), Guide to Cost-Benefit Analysis of Investment Projects. Directorate General for Regional and Urban Policy.
https://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/cba_guide.pdf
- European Investment Bank (2013). The Economic Appraisal of Investment Projects at the EIB,
http://www.eib.org/attachments/thematic/economic_appraisal_of_investment_projects_en.pdf
- Ferrer, A.L.C. Thomé, A.M.T. Scavarda. A.J. (2016). Sustainable urban infrastructure: a review. Resour. Conserv. Recycl. (2016), <https://doi.org/10.1016/j.jenvman.2016.09.080>



6. EVALUATION

- 60% on a group presentation on an infrastructure project that the students can choose. The Professors and the Academic assistant will decide on the composition of the groups. The presentations will take place during the final module session. Full instructions will be given during the first module session.
- 40% on a test based on multiple-choices questions. The date will be set up soon after the course finishes.
- For second examination session: the resit examination is written and counts for 100% of the mark.

The College of Europe reserves the right to change the delivery and assessment of the course in case of restrictions related to the Covid-19 pandemic. Any communication from the Department in this regard takes precedence over the information provided in this ECTS card.