Course guide
480077 - 480077 - Social and Transdisciplinar Research

Last modified: 27/07/2023

Unit in charge: Barcelona School of Civil Engineering
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering.
717 - DEGD - Department of Engineering Graphics and Design.
729 - MF - Department of Fluid Mechanics.

Degree: MASTER'S DEGREE IN SUSTAINABILITY SCIENCE AND TECHNOLOGY (Syllabus 2013). (Compulsory subject).

Academic year: 2023 **ECTS Credits:** 5.0 **Languages:** Spanish

LECTURER

Coordinating lecturer: ELISABETH ROCA BOSCH

Others: Míriam Villares Junyent
Jordi Segalàs Coral
Gemma Tejedor

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE06. The capacity to apply the methods and tools used in the identification, information management, planning, management, execution and evaluation of programmes and projects in the fields of sustainability and environmental management to specific problems in a collaborative manner.
CE13. The ability to apply, critically analyse results and assess valorisation theories, approaches and methods in the fields of food and rural development and agricultural, water, energy, building construction, transport and spatial engineering.

Generical:
CG03. The ability to analyze, evaluate and synthesize, critically, new and complex ideas and promote, within academic and professional, scientific, technological, social or cultural knowledge society contexts.
CG02. Develop and / or implement innovative ideas in a research context by identifying and formulating hypotheses and by submitting to prove objectivity, consistency and viability.

Transversal:
07 AAT N2. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.
CT2. SUSTAINABILITY AND SOCIAL COMMITMENT: Being aware of and understanding the complexity of the economic and social phenomena typical of a welfare society, and being able to relate social welfare to globalisation and sustainability and to use technique, technology, economics and sustainability in a balanced and compatible manner.

CT3. TEAMWORK: Being able to work in an interdisciplinary team, whether as a member or as a leader, with the aim of contributing to projects pragmatically and responsibly and making commitments in view of the resources that are available.

CT4. EFFECTIVE USE OF INFORMATION RESOURCES: Managing the acquisition, structuring, analysis and display of data and information in the chosen area of specialisation and critically assessing the results obtained.

Basic:
CB9. That students can communicate their conclusions-and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously.
CB10. That students have the learning skills to allow them to continue studying in a way that will have to be largely autodirirgido or autonomous.
CB8. Students should be able to intregrar knowledge and handle complexity, and formulate judgments based on information that was incomplete or limited, include reflecting on social and ethical responsibilities linked to the application of its conocimienttos and judgments.
CB7. That students can apply their knowledge and ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field d'study.
CB6. Knowledge and understanding to provide a basis or opportunity for originality in developing and app ideas, often within a research context.

TEACHING METHODOLOGY

Master class or conference (EXP): presentation of knowledge by the faculty through master classes or by external persons through invited conferences.
Case study (RP): collective resolution of exercises, conducting debates and group dynamics, with the teacher or other students in the classroom; presentation in the classroom of an activity carried out individually or in groups.
Theoretical - practical directed work (TD): realization of an activity or exercise of a theoretical and practical nature, in small groups, with the advice of the teacher in the classroom.
Project, activity or work (PR): learning based on group realization, of a work of certain complexity and extension, applying knowledge and presenting results.
Evaluation Activities (EV)

Addendum. During the spring semester of the 2019-2020 course, and as a consequence of the health crisis due to the COVID19, the teaching method will include: Asynchronous sessions, teaching videos, course assignments and training activities available at ATENEA to ensure students ' learning.

LEARNING OBJECTIVES OF THE SUBJECT

To provide tools and methods of the social sciences for the design and implementation of transdisciplinary research and for the study of socio-environmental and technological challenges.

To understand the emergence of transdisciplinary research and the roles of participants in the science / society interface.

This course aims to be a methodological support that complements and reverses the work carried out in other subjects. The activities that are carried out seek harmony with other subjects to favor deepening the cases that are being worked on so add synergies.

STUDY LOAD

Type	Hours	Percentage
Hours small group	9,0	7.20
Hours medium group	12,0	9.60
Self study	80,0	64.00
Hours large group	24,0	19.20

Total learning time: 125 h

CONTENTS

Introduction to social and transdisciplinary research

Description:
The need for social and transdisciplinary research to address the problems of unsustainability. The characteristics of conflicts and issues related to sustainability. Framework of post-normal complexity Complexity, diversity of perspectives and knowledge, values â□□â□□in dispute, types of uncertainty

Specific objectives:
To understand the context and the nature of unsustainability problems, as well as, approaching the appropriate methodological perspectives to study and manage them

Related activities:
Reading and comments on articles provided. Debate in the classroom.

Full-or-part-time: 9h 20m
Theory classes: 6h
Self study : 3h 20m

The transdisciplinary research process

Description:
A reflective process model of transdisciplinary research. The constitution of the project and the formulation of the problems. Co-production of connectable knowledge oriented to solutions and integration of methods. Re-integration of knowledge.

Specific objectives:
To understand the characteristics of a transdisciplinary investigation and process of co-creation of knowledge

Related activities:
Exercise of collaborative and co-creation work techniques

Full-or-part-time: 3h
Theory classes: 3h

Co-creation and collaborative work

Description:
Exploration of knowledge integration and mutual learning methods, boundary work, co-creation techniques and collaborative work

Specific objectives:

To get in contact with techniques for col·laborativo work.

Related activities:

Exercise of application of techniques of collaborative work and co-creation

Full-or-part-time: 6h 20m
Theory classes: 3h
Self study : 3h 20m

Methods of quantitative analysis: the survey

Description:
The quantitative vs. qualitative debate. The need for triangulation to deal with complex problems of unsustainability. Design of questionnaires, sampling techniques and application.

Specific objectives:
To get in contact with the phases of a social research process and the available methodologies.
To understand the debate around qualitative and quantitative approaches in the social sciences, as well as their synergies and complementarities.
To explain the survey and tp be able to propose an investigation, design a questionnaire and plan its application.

Related activities:
Survey design and application plan

Full-or-part-time: 12h
Theory classes: 5h
Guided activities: 1h
Self study : 6h

Methods of qualitative analysis

Description:
The in-depth interview and the group techniques, as strategies to analyse social perception, discourses and narratives on a sustainability topic. Participant and non-participant observation, historical analysis. Design of open and semi-structured questionnaires, selection of informants. Method planning and application. Life stories Deliberative techniques: Workshops and discussion groups. Content and discourse analysis. Treatment of qualitative information.

Specific objectives:
Explain methodologies to collect qualitative information and apply techniques for its analysis.

Related activities:
Semi-structured interview with key stakeholders design and application.
Qualitative discourse analysis exercise.

Full-or-part-time: 21h
Theory classes: 3h
Practical classes: 2h
Laboratory classes: 3h
Guided activities: 1h
Self study : 12h

Citizen participation in science and new methodologies based on ICT

Description:

Visual information (photographs, videos), use and management of information from social networks and the media. Projects of Ciutadana science

Specific objectives:
To get in contact with other methodologies of social sciences based on new technologies, social networks and the participation of society. Understand its applicability and limits in a transdisciplinary context.

Related activities:
Evaluation of a participatory experience or technological application within the framework of a social investigation

Full-or-part-time: 10h
Theory classes: 3h
Practical classes: 3h
Self study : 4h

Transdisciplinary evaluation of stratègies, plans and projects

Description:
Social and participatory multicriteria analysis. Social impact evaluation projects. Participatory planning. Scenario analysis.

Specific objectives:
To explain integrative vocation methodologies that can combine previously explained techniques to evaluate plans, projects os future scenarios in order to manage problems of unsustainability from transdisciplinarity.
Apply scenario analysis

Related activities:
Visions of the future
Exercise of robustness scenario analysis.
Essay on guest conference

Full-or-part-time: 18h
Theory classes: 4h
Practical classes: 4h
Guided activities: 4h
Self study : 6h

GRADING SYSTEM

Addendum. During the spring semester of the 2019-2020 course, and as a consequence of the health crisis due to the COVID19, the evaluation will be based on the work and practices carried out during the course (TR), which will have a value of 100% of the final mark.

BIBLIOGRAPHY

Basic:

- Hirsch, G. [et al.]. Handbook of transdisciplinary research [on line]. Dordrecht: Springer, 2008 [Consultation: 04/03/2021]. Available on: https://ebookcentral.proquest.com/lib/upcatalunya-ebooks/detail.action?docID=338481. ISBN 9781402066993.
- Lang, D.J.; Wiek, A.; Bergmann. M.; Stauffacher, M.; Martens, P.; Moll, P.; Swilling, M. "Transdisciplinary research in sustainability science: practice, principles, and challenges". Sustainability Science [on line]. Vol. 7, supl. 1 (2012), p. 25–43 [Consultation: 19/09/2018]. Available on: https://link-springer-com.recursos.biblioteca.upc.edu/article/10.1007/s11625-011-0149-x.- Babbie, E.R. The practice of social research. 14th ed. Boston: Cengage, 2016. ISBN 9781305104945.
- Funtowicz, S.O.; Ravetz, J.R. "Science for the post-normal age". Futures [on line]. 1993, vol. 25, issue 7, pp. 739-755 [Consultation: 26/02/2021]. Available on: https://www.sciencedirect.com/science/article/pii/001632879390022L.- Wiek, A. & Iwaniec, D. "Quality criteria for visions and visioning in sustainability science". Sustainability Science [on line]. Vol. 9, núm. 4 (2014), p. 497-512 [Consultation: 19/09/2018]. Available on: https://link-springer-com.recursos.biblioteca.upc.edu/article/10.1007/s11625-013-0208-6.- Flick, U. An introduction to qualitative research. 5th ed. Los Angeles: Sage, 2014. ISBN 9781446267790.
- Bergmann, M.; Jahn, T.; Knobloch, T.; Krohn, W.; Pohl, C.; Schramm, E. Methods for transdisciplinary research : a primer for practice. Frankfurt ; New York: Campus-Verlag, 2012. ISBN 9783593396477.
- Vianna, M.; Vianna, Y.; Adler, I.K.; Lucena, B. & Russo, B. Design thinking: business innovation [on line]. 2nd ed. MJV Press, 2015 [Consultation: 14/05/2019]. Available on: https://www.designthinkingbook.com/. ISBN 9788565424028.

Complementary:

- Thompson Klein, J. "Discourses of transdisciplinarity: looking back to the future". Futures [on line]. vol. 63 (nov. 2014), p. 68-74 [Consultation: 19/09/2018]. Available on: https://www.sciencedirect.com/science/article/pii/S0016328714001311.- Aledo Tur, A.; Domínguez Gómez, J.A. Sociología ambiental. Granada: Grupo Editorial Universitario, 2001. ISBN 8484911098.
- Mueller, M.P.; Tippins, D.J. (eds). EcoJustice, citizen science and youth activism : situated tensions for science education [on line]. Cham: Springer, 2014 [Consultation: 08/02/2021]. Available on: https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?docID=1967285. ISBN 9783319116082.