STEP
STEM Research
Equality, Diversity and Inclusion

Course Title	Equality, Equity, Diversity, and Inclusion in STEM			Field of Study	Transdisc.		
Target Group	Lecturers, Teachers, Researchers			School/ Faculty	Transversal		
Academic Type	2024-2025	Semester	1st	Delivery mode	Blended	ECTS Code	3 X
Workload	81h	Contact Hours	30				

Lecturers

Alessandro Meloni, Ana Isabel Pereira, Ann Mutvei, Angela Celeste Taramasso, Cinzia Leone, Juan Pavón, Yanna Franco, Raquel Ávila, Maria de Fátima Pacheco, Zahia Guessoum and Guests

Learning Outcomes

At the end of the course unit the learner is expected to be able to:

1. Understand the key concepts of equality, equity, diversity, and inclusion (EEDI) in the context of STEM research, including their definitions, significance, and the relations between them.
2. Identify biases, barriers, and opportunities for improvement, through the critical analysis of the literature, policies, and practices related to EEDI in STEM research.
3. Be aware of systemic issues, challenges, and disparities faced by underrepresented groups in STEM fields, including gender, race, ethnicity, socioeconomic status, and disabilities.
4. Identify the intersectional nature of identities and experiences, understanding how multiple dimensions of diversity intersect and influence individuals' opportunities and experiences in STEM research.
5. Discuss best practices and evidence-based strategies for promoting EEDI in STEM research environments, including recruitment, retention, mentorship, and career advancement.
6. Explore inclusive pedagogical approaches and teaching methods that support diverse learners and support an inclusive learning environment in STEM research contexts and education.
7. Identify and diminish unconscious biases in research design, data collection, analysis, and interpretation, ensuring the integrity and validity of research outcomes.
8. Improve cultural sensitivity, learning to respect diverse cultural norms, values, and perspectives in collaborative research settings.
9. Cultivate the skills and mindset necessary to advocate for underrepresented individuals and communities in STEM, promoting equity, diversity, and inclusion at institutional and systemic levels.
10. Adopt an attitude of self-assessment and continuous evaluation of own attitudes, behaviors, and practices related to EEDI in STEM research, cultivating personal and professional growth.

Pre-requisites and Co-requisites

Not applicable

Visit step.ipb.pt to know more about STEP Project.

Course Contents

- Introduction to EDI in STEM Research
- Bias and Privilege in Research
- Bias in AI
- Intersectionality and Multiple Dimensions of Diversity
- Challenges and Barriers in STEM Research
- Promoting Equity and Inclusion in Research Environments
- Inclusive Research Practices and Methodologies
- Action Planning and Implementation

Readings and Learning Resources and tools

- Specific scientific papers and technical reports

Learning Activities and teaching methods

Interactive lectures.

Group discussions.

Case study analysis.

Small-group discussions

Role-playing.

Guest speakers.

Panel discussion.

Workshop on best practices.

Peer feedback sessions.

Development of action plans.

Assessment methods and criteria

Self-Assessment (reflections on personal goals and growth throughout the program / contributions to group work and discussions) – 50%

Peer-Assessment (peer review of presentations, projects, or action plans / feedback on collaborative work and group dynamics) – 50%

Language

English

Methodology

Online sessions of 45 min: December 2024 - January 2025

Face-to-face week: 10 - 14 February 2025

Application until 30 September 2024

https://shorturl.at/joITo

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Detailed Information

Some Online sessions of 45 min

- **Bias in AI-Generated Images: Reflections from Informal Experiments**. Raquel Ávila (UCM).

    This session aims to promote reflection on bias in generative generative *text to image* AI models. Starting with the analysis of a set of informal experiments that reveal a worrying tendency to produce gender bias and racial stereotypes from neutral prompts, participants will be encouraged to discuss the implications of the lack of transparency in AI training and reflect on responsible AI development. Topics will include whether AI should be trained to represent social reality as it is or to depict an ideal, egalitarian society free of stereotypes, as well as the critical importance of a diverse and inclusive development community as a basis for a fairer and less biased AI.

- **Awareness of domination techniques** Fatima Jonsson, Ann Mutvei, Mona Petersson (SH)

    Domination techniques, also called master suppression techniques can be described as unfair, often invisible actions against one or more individuals where the victim(s) are excluded from the work community. The aim of the session is to learn and get examples of the five dominance techniques described by Berit Ås and how we can be aware of them.

- **Integrating Gender+ Perspectives in Education.** Angela Celeste TARAMASSO, Rita Bencivnega (UniGe)

    The course on hydrology provides students with a broader perception of the intricate web of factors involved in climate change and encourages them to consider the social, economic, environmental and ethical dimensions of the issue. Awareness of this holistic approach equips students with the basic knowledge necessary to understand that developing innovative, sustainable solutions that take into account the diverse implications of climate change on communities and ecosystems is a complex challenge. Through regular meetings, researching appropriate documents and resources and sharing data, we have been able to identify the aspects that feed into the course that align with the SDG goals, the gender+ dimension and the introduction of inclusive language

- More will be added…

Some Face-to-face Week Activities

- **Breaking Barriers: Promoting Equality, Diversity, and Inclusion in STEM** Yanna Franco (UCM). This interactive talk-workshop aims to explore the critical issues of equality, diversity, and inclusion in the fields of Science, Technology, Engineering, and Mathematics (STEM). Participants will engage in discussions, activities, and reflections to better understand the challenges and opportunities related to fostering an inclusive environment in STEM.

- **Inclusion and accessibility in the academic environment** Angela Celeste Taramasso, Marina Perelli, Giuseppe Pestarino (UniGe)
  Brief overview of European legislation on the inclusion of different educational pathways for students with disabilities and specific learning disorders.
  As an example, a description of the facilities that support the needs of students with disabilities at the University of Genoa.
  Description of the technologies used to improve the participation of students with hearing impairments in lectures and the participation of citizens with hearing impairments in events organised as public/citizen engagement actions.
  Presentation of the document on improving accessibility for students with disabilities and specific learning disabilities: Strategies and actions at the University of Genoa, with particular reference to accessible teaching materials and the creation of accessible documents and presentations.
  Proposal to organize a World Coffee on these topics.

- **Counteracting Dominance Techniques** Fatima Jonsson (SH)

  The first online session "Awareness of domination techniques" described the five domination techniques. This workshop will continue to raise awareness of dominance techniques and provide an opportunity to discuss experiences. Participants will also learn and discuss strategies of counteraction and resistance that can help you in your working life.

- **Experiences and learnings from EDI projects** Angela Celeste Taramasso (UNIGE)

  Exploration of The Ulysseus Alliance and the EDI theme on the STEAM area and presentation and discussion of Experiences and lessons learnt from other research projects related to the BIP topic.

- More will be added…