The PhD in Sustainable Development and Climate change

Mario Martina, Coordinator
How can we contribute to the achievement of the SDGs?
How can we contribute to addressing climate change?
PhD IN SUSTAINABLE DEVELOPMENT AND CLIMATE CHANGE.

FUTURE IS GREEN, RESEARCH IS COLORFUL!

EARTH SYSTEM AND ENVIRONMENT

SOCIO-ECONOMIC RISK AND IMPACTS

HEALTH AND ECOSYSTEMS

TECHNOLOGY AND TERRITORY

AGRICULTURE AND FORESTRY

THEORIES INSTITUTIONS AND CULTURES
3 Challenges:

• **Scientific**: Sustainable Development **AND** Climate Change

• **Academic**: research **across** the Disciplines

• **Institutional**: a **new PhD** model in the educational system
The project
A national PhD course at
Course organization

IUSS

All PhD candidates are enrolled at IUSS

Headquarter

PhD candidate carries out research activities at the Host University on a Research Topic

Host University

PhD coordination

Administrative services

Research supervisor

Research team

Research resources
Course organization

PhD candidates work in collaboration within the PhD network.
Some numbers

<table>
<thead>
<tr>
<th></th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
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<tbody>
<tr>
<td>PARTNER UNIVERSITIES</td>
<td>30</td>
<td>52</td>
<td>57</td>
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<tr>
<td>PROFESSORS AND RESEARCHERS</td>
<td>130</td>
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<td>200</td>
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<td>PHD CANDIDATES</td>
<td>105</td>
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<tr>
<td>PRIVATE INSTITUTIONS</td>
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</table>
Fundings

- **MUR**: 22%
- **PNRR**: 45%
- **Universities**: 25%
- **Public and Private Institutions**: 8%

- 2021: 8.7 Mio
- 2022: 17.6 Mio
- 2023: 31.1 Mio
Governance

Coordination Committee (10 members) → International Advisory Board (10 members)

Scientific Board (75 members)
The 3D of the PhD

**Horizontal**
Sustainable Development and Climate Change

**Vertical**
- Agriculture and Forestry
- Health and Ecosystems
- Earth System and Environment
- Technology and Territory
- Theories and Institutions
- Socioeconomic Risk and Impacts

**Focus**
Sustainable Development and Climate Change

Educational & Research Programmes
Educational Programme

**Horizontal**

- Multi-Disciplinary (MD)
  - events to expose all the PhD candidates to the complexity of Sustainability and Climate Change

**Vertical**

- Curriculum (CU)
  - events to train PhD candidates on tools and topics common to the scientific curriculum

**Focus**

- Focused and Disciplinary (FD)
  - selection of thematic and methodological courses suggested by the supervisors and offered by the local host university
## Educational Programme

<table>
<thead>
<tr>
<th>Level</th>
<th>Name</th>
<th>Organizer</th>
<th>Hours</th>
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<tbody>
<tr>
<td>1</td>
<td>MD</td>
<td>PhD board</td>
<td>48+</td>
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<tr>
<td>2</td>
<td>CU</td>
<td>CU board</td>
<td>48+</td>
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<tr>
<td>3</td>
<td>FD</td>
<td>Supervisor</td>
<td>64+</td>
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Educational Programme

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<tr>
<th>Event</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
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<tr>
<td>Multi-disciplinary (MD)</td>
<td>Kick-off event</td>
<td>Seasonal event</td>
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<tr>
<td>48h</td>
<td>All candidates</td>
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<tr>
<td>Curriculum events (CU)</td>
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<tr>
<td>48h</td>
<td>CU candidates</td>
<td></td>
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<tr>
<td>Local University events (LU)</td>
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<tr>
<td>64h</td>
<td>Local candidate(s)</td>
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</tbody>
</table>

- **Meeting**
- **Online presentation**
- **Training**
- **Poster session**

*training hours*
The research areas

1. Earth System and Environment
   - Climate and paleo-climate
   - Environmental risks and impacts
   - Greenhouse gas emissions
   - Physical and chemical processes
   - Probability approaches and extremes
   - Circular economy and eco-innovations
   - Energy transition
   - Physical and transition risks
   - Predictive models and evaluation models
   - Responsible business, finance and consumption
   - Scenario analysis and policies for sustainability
   - Sustainable mobility
   - Energy transition
   - Governance of the territory and networks

2. Socio-Economic Risk and Impacts
   - Innovative materials and advanced technological processes
   - Regeneration of cities, communities and infrastructures
   - Sustainable catalytic processes
   - Sustainable mobility
   - System and process monitoring
   - Ecological humanities
   - Governance and sustainable finance
   - Health and climate
   - Regulatory policies
   - Theories of justice
   - Transgenerationality
   - Ecosystem services
   - Food security/safety and farm productivity
   - Precision farming, biotechnologies and eco innovation
   - Resource use efficiency
   - Rural development
   - Smart and digital agriculture
   - Transformative adaptation
   - Biodiversity and biotechnology
   - Ecosystem health
   - Human health

3. Technology and Territory

4. Theories, Institutions and Cultures

5. Agriculture and Forestry

6. Health and Ecosystems
Curricula - ERC

ERC sectors

Physical Sciences and Engineering

Life Sciences

Social Sciences and Humanities
1800+ candidates
Key features

- **3 years** of PhD programme (in English)
- **160+** hours of training
- **6 months** of research abroad
- A network of **50+** Universities in **50+** Italian cities
- **200+** Professors and Researchers
- A budget of **10k euro** for mobility and research expenses
THE PhD-SDC MEETS THE SDGs
22-24 MAY 2023

CHALLENGES
- Adaptability
- Lack of facilities
- Reliability
- Standards
- Coverage

FOCUS
- Find common goal(s)
- Interactions
- Trans-disciplinary data use & prediction
- Complexity
- Context

ACT!

RESEARCH
- A chain of virtuous events
- Nature, risk, mitigation
- Resources, communities
- Intergenerational

COLLABORATE
- Data common language
- Context
- Perspectives & biases

KEYWORD
- Land, water, food, energy balance
- Complexity
- Context

LINKS TO SDG
- Economy
- Education
- Health
- Gender equality
- Peace & justice
- Peaceful societies
- Reduced inequalities
- Sustainable cities
- Life on land
- No poverty
- Clean water & sanitation
- Affordable & accessible energy
- Zero hunger

5. Gender equality
6. Descent work & economic growth
7. Industry, innovation & infrastructure
8. Peace & justice
9. Peaceful societies
10. Reduced inequalities
11. Sustainable cities
12. Life on land
13. No poverty
14. Clean water & sanitation
15. Affordable & accessible energy
16. Zero hunger
THE PhD-SDC MEETS THE SDGs

22-24 MAY 2023

ACT

TRANSLATE INTO CONCRETE ACTIONS

PUBLIC
DECISION MAKERS

COMMUNICATION

MUTUAL UNDERSTANDING

RESEARCHERS' COLLABORATION

STAKHOLDERs: TAYLOR-MADE DATA

RESOURCES

DATA

COLLECT REAL DATA

SIMULATION MODELS

SOLUTIONS

RIGHT INFORMATION
RIGHT DECISIONS

UNCERTAINTIES TO UNDERSTAND:
RELIABILITY
COVERAGE
STANDARDISATION

ENERGY

ADDRESS INEFFICIENT & POLLUTING TYPES OF FUELS/ENERGY

CLEAN ENERGY
MORE EFFICIENT
REDUCES CLIMATE ISSUES

ECONOMICS

RESOURCES ARE LIMITED

USE TECH KNOWLEDGE
WASTE MANAGEMENT

SOCIAL RESPONSIBILITY

TOOLS & IMPROVE CONDITIONS

ORDERLY TRANSITION

POLICIES

PRODUCTIVITY

FINANCIAL ASPECT

CIRCULAR ECONOMY

NATURE

ECONOMY

NATURAL

MESSAGE ANALOGY

5 GENDER EQUALITY
8 DECENT WORK & ECONOMIC GROWTH
10 REDUCED INEQUALITIES
11 SUSTAINABLE INSTITUTIONS
16 PEACE, JUSTICE & STRONG INSTITUTIONS

KEEP GOAL IN MIND

FASTER NEW IDEAS
The calls for applications are now open!!!

1st call – Deadline 17 of July
2nd call – Deadline 4 of August
networking the Italian research system in a changing world
www.phd-sdc.it
PhD SDC
SUSTAINABLE DEVELOPMENT AND CLIMATE CHANGE

CONTACTS

www.phd-sdc.it
phd-sdc@iusspavia.it
The calls for applications
Two calls for Applications

- Deadline 17 July 2023 at 13.00 CEST for 111 scholarships
- Deadline 4 August 2023 at 13.00 CEST for 11 scholarships
- You can apply for both calls
- You can choose only 1 Curriculum
- You can choose up to 3 Research Topics
- You must submit:
  - Curriculum Vitae
  - Research Proposal on the 1st choice
  - Letter of Purpose on all the choices
  - Degree Certificate or Transcript of the Exams
Curriculum Vitae

Language: English
Max 2000 words

• Education qualifications and training path
• Research and Work experience
• List of publications
• Academic and Professional experience
Research Proposal

Language: English
1000 - 2500 words

on the research topic chosen as the first preference:
• abstract (max 250 words)
• research scope and questions
• methodology
• expected results and impacts
Letter of Purpose

Language: English
Max 500 words

on the main research topics and the other 2 favorite ones:

• Motivations
• Interests
• Relevant skills
• Relevant experience
Degree Certificate

Language: English or Italian

For Italian Degrees: Self-Declaration

For Foreign Degrees one of:

Degree Certificate
Diploma Supplement
Transcript of the exams
(in case the degree is not yet obtained)
2. Evaluation

Qualifications (min 35/60):

• CV + Academic Degree/ Transcript max 20
• Research Proposal + Letter of Purpose max 40

Oral Interview (min 25/40):

• Interview max 40

Eligibility (for each research topics) Yes/No
## 2. Final Ranking

<table>
<thead>
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Note: The table uses green circles to indicate positive scores and red crosses to indicate scores below a certain threshold. The ranking is based on the sum of scores, with higher scores indicating a better ranking.