Research options available for topic A

Research topics a) and b) offered by every Doctoral Course involved in UNIPhD are frameworks within which every applicant has to present an original research project in collaboration with a Supervisor at the University of Padua.

Potential Supervisors at Unipd have proposed the following detailed research options, which are related to the research topic. They are offered as a guideline and should facilitate your contact with potential Supervisors. Supervisors’ e-mail is specified in every research option table. You are welcome to contact them directly.

Note that this research option list is not at all exhaustive and, within the topic you have chosen, you are free to propose a different research project.

<table>
<thead>
<tr>
<th>Doctoral Course</th>
<th>LAND, ENVIRONMENT, RESOURCES AND HEALTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macro-area</td>
<td>Cross-domain Physical Sciences and Engineering / Life Sciences</td>
</tr>
<tr>
<td>Department name</td>
<td>Department of Land, Environment, Agriculture and Forestry</td>
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<tr>
<td>Webpage</td>
<td><a href="http://www.tesaf.unipd.it/en/lerh">http://www.tesaf.unipd.it/en/lerh</a></td>
</tr>
<tr>
<td>Research topic A</td>
<td>Ecosystem services at regional scale in the EU bio-economies</td>
</tr>
<tr>
<td>Link to the UNIPhD Call (Academic Year 2022/2023)</td>
<td><a href="https://www.unipd.it/en/uniphd">https://www.unipd.it/en/uniphd</a></td>
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<td>Latest Update</td>
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#1 Research Option Description

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<tr>
<th>Doctoral Course</th>
<th>Land, Environment, Agriculture and Health (LERH)</th>
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<tbody>
<tr>
<td>Department name</td>
<td>Dipartimento di Territorio e Sistemi Agro-Forestali (TESAF) (in English: Department of Land, Environment, Agriculture and Forestry)</td>
</tr>
<tr>
<td>Research topic A</td>
<td>Ecosystem services at regional scale in the EU bio-economies</td>
</tr>
<tr>
<td>Research option</td>
<td>Green care and social innovation initiatives to unlock the potential of cultural ecosystem services at regional scale in the EU bio-economies.</td>
</tr>
</tbody>
</table>

**Supervisor**

Laura SECCO; email: [laura.secco@unipd.it](mailto:laura.secco@unipd.it)

**Other members of the research group:**

Mauro MASIERO, email: [mauro.masiero@unipd.it](mailto:mauro.masiero@unipd.it)
Davide Matteo PETTENELLA, email: [davide.pettenella@unipd.it](mailto:davide.pettenella@unipd.it)
Paola GATTO, email: [paola.gatto@unipd.it](mailto:paola.gatto@unipd.it)
Elena PISANI, email: [elena.pisani@unipd.it](mailto:elena.pisani@unipd.it)

**Webpage**

Laura Secco: [https://www.tesaf.unipd.it/category/ruoli/personale-docente?key=8D8552541745FCB32D7808861A8933](https://www.tesaf.unipd.it/category/ruoli/personale-docente?key=8D8552541745FCB32D7808861A8933)

Similar information can be found for each member of the research group at the following URL: [https://www.tesaf.unipd.it/category/ruoli/personale-docente](https://www.tesaf.unipd.it/category/ruoli/personale-docente)

Other information at: [https://www.tesaf.unipd.it/en/research/doctoral-degrees-phd-lerh-program](https://www.tesaf.unipd.it/en/research/doctoral-degrees-phd-lerh-program)

**Context of the research activity and objectives**

Forests and wooded land cover 42% of the EU’s total land area. Ecosystem services from these landscapes, and in general from natural and green areas, can play a key role in supporting the EU bio-economies and EU communities’ resilience. However, only some provisioning (wood) and regulating (carbon sequestration) ecosystem services are mentioned as having a role within the current bio-economy strategies. Cultural ecosystem services such as recreation, education, human health and wellbeing have been so far underestimated, both in terms of their direct contribution to the local and national economies and indirect positive effects on maintaining the multiple sustainable functions of forests and green areas. The research aims to fill in this knowledge gap and analyze the role of cultural ecosystem services at regional scale in EU bio-economies – focusing on those provided by socially innovative green care initiatives in different European countries. Green care refers to a range of nature-based initiatives, which improve human health and wellbeing while promoting a sustainable management of green areas and offering new green jobs opportunities to landowners and managers. Social innovation implies the involvement of civil society and transformation of social practices. They include for example forest therapy practices, social farming, schools in nature and many other applications. The importance of socially innovative green care initiatives has become of paramount evidence during the COVID-19 pandemic, with a substantial increase of social demand for outdoor activities in natural ecosystems oriented at Human-Nature re-connections. Economic, ecological, socio-cultural and institutional drivers and barriers affecting the demand for/supply of existing initiatives providing cultural ecosystem services will be analyzed to delineate effective, replicable, and regionally scalable solutions. In particular, benefits and costs, socio-economic impacts and values of cultural ecosystem services deriving from green care initiatives will be estimated, applying mixed qualitative-quantitative research methods in
selected case studies. Up-scaling implications will be explored. Results will provide evidence of the economic contribution that green care initiatives provide (and can potentially provide in the future) to the EU bio-economies at a regional scale, and will inform with lessons learned green areas managers, rural and forest entrepreneurs, policy makers and others willing to develop/support these initiatives to unlock the potential of cultural ecosystem services in Europe.

### Infrastructures

The candidate will be hosted at the Land, Environment, Agriculture and Forestry Department of the University of Padova, and will have access to all the excellent research facilities and infrastructures offered to PhD candidates at the Department and Campus. These facilities include those provided by the University e.g., the access to an extensive Library System (including more than 2,200,000 books and journals and 100,000 e-books), to all major scientific database and international journals (i.e. 260 online databases and 81,000 e-journals) and to the University’s data storage network; as well as those provided by the Department, e.g. a working station with personal desk, PC, telephone, printer, Wi-Fi access, personal e-mail, web profile on institutional website, software licenses, automatic data security back-ups and internal IT support, free access to high-quality training and academic courses..

### Skills and competencies for the development of the activity

- Awareness of key-policies and strategies in the field of bioeconomy (with a focus on forest-based bioeconomy) at EU level, Green Deal, Common Agriculture Policy and Rural Development Programs, etc. is welcome, as well as basic knowledge on ecosystem services.
- A background in social sciences, in particular in economics (environmental economics and public good economics) is recommended. This includes familiarity – both from a theoretical and an operational point of view – with approaches, methodologies, and tools to assess and evaluate ecosystem services.
- The research will require the use of a mix of qualitative and quantitative approaches therefore the candidate should be familiar with both qualitative (e.g., semi-structured interviews, questionnaires, sampling design, surveys, etc.) and quantitative (e.g., econometrics, basic statistics, software/tools for the assessment of ecosystem services etc.) research methods.
- A good attitude to positive interpersonal relationships, networking capacities, proactiveness as well as the capacity to work in group and multidisciplinary and international contexts are positively considered.

### Training offer

The LERH PhD course offers extensive training opportunities, with a number of compulsory and eligible courses. At least 20 ECTS are expected to be acquired by the PhD students during the 1st year. The courses are updated each year. Those available on the academic year 2021-2022 are described at [https://www.tesaf.unipd.it/en/research/doctoral-degrees-phd-lrh-program/teaching](https://www.tesaf.unipd.it/en/research/doctoral-degrees-phd-lrh-program/teaching). Amongst them, the following are particularly relevant for this research option:

- Data collection: from questionnaires to participatory approaches” (2 ECTS)
- Spatial statistics (2 ECTS)
- Spatial statistics in socio-economic research (2 ECTS)
- Econometric models to inform environmental resources management and food policies (1 ECTS)

Other courses can be useful:
- e-learning course on “Green Care: from academic theory to entrepreneurial practice”
- MOOC course on “Introduction to Sustainable Bioeconomy” (PerForm project)
- MOOC on “Social innovation in marginalized rural areas” (SIMRA project)
- Training on standards and certification for ecosystem services (e.g. offered by external organizations such as the Forest Stewardship Council – FSC)
- Additional on-demand training to be identified in collaboration with the PhD candidate and with the possible secondment options

<table>
<thead>
<tr>
<th>Possible Secondments</th>
<th>Non-academic secondment: ETIFOR – spin off (6 months)</th>
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<tbody>
<tr>
<td></td>
<td>Academic secondment: European Forest Institute (EFI) (6 months)</td>
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## #2 Research Option Description

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<tr>
<th>Doctoral Course</th>
<th>Land, Environment, Agriculture and Health (LERH)</th>
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<tbody>
<tr>
<td>Department name</td>
<td>Department of Land, Environment, Agriculture and Forestry</td>
</tr>
<tr>
<td>Research topic A</td>
<td>Ecosystem services at regional scale in the EU bio-economies</td>
</tr>
<tr>
<td>Research option</td>
<td>Wood biomass domestic consumption and production: a simulation model to describe the potential of national forest resources and policy simulations for the development of bio-economy</td>
</tr>
</tbody>
</table>

**Supervisor**: Davide Matteo PETTENELLA; email: davide.pettenella@unipd.it  
*Other members of the research group:*  
Mauro MASIERO, email: mauro.masiero@unipd.it  
Laura SECCO, email: laura.secco@unipd.it  
Paola GATTO, email: paola.gatto@unipd.it  
Elena PISANI, email: elena.pisani@unipd.it

**Webpage**  
Davide Pettenella: https://intra.tesaf.unipd.it/pettenella/  
Similar information can be found for each member of the research group at the following URL: https://www.tesaf.unipd.it/category/ruoli/personale-docente  
Other information at: https://www.tesaf.unipd.it/en/research/doctoral-degrees-phd-lerh-program

### Context of the research activity and objectives

In the last decade the bioenergy market in Italy has been growing continuously and this trend is expected to continue in the future. Wood biomass, an important provisioning ecosystem service deriving from forest ecosystems, has become the principal source of renewable energy in Italy and as such has a strategic role in the bio-economy. It is cost-effective as raw material and the low utilization of Italian forests improves the opportunities to enhance forest management. The wood-bioenergy market is growing and opens up new opportunities, but it has also to face important challenges in terms of policy regulation both at national and European level (e.g. European Climate Law, Biodiversity Strategy 2030, New EU Forest Strategy for 2030, not to mention the Green Deal).  
So far there is a strong lack quality in the available data: for instance, there is neither complete data quantification nor coherent scientific assessment of the Italian wood-energy market. The project has two main goals (a) to build up a quantitative model based on a coherent statistical representation of the wood biomass flows (b) to simulate energy policies on the basis of available datasets with possible alternatives to wood biomass production. The main aim of the project is to create a correct and up-to-date information framework on the flows concerning the first renewable energy source in Italy. These flows are not only important for scientific and statistical purposes, but concern forest areas which are the country’s ‘first green infrastructure’ (DM 1061/2021). In this sense, the knowledge that we intend to acquire is in full harmony with the “themes aimed at preserving the ecosystem, biodiversity, reducing the impacts of climate change and promoting sustainable development” (DM 1061/2021). A key “contribution to promoting green recovery” (DM 1061/2021) is, in fact, knowledge of the limits and possibilities of expanding the production of woody biomass, trade-offs between protecting biodiversity and other supporting or
regulating ecosystem services and developing the use of biomass for thermal purposes (especially in relation to local development policies), the impacts of woody biomass consumption on the carbon storage capacity of national forests and on the conservation of forests in other countries (Italy is the world’s leading importer of fuelwood and and, according to the EC, 20% of timber imported into the EU is of illegal origin).

The candidate will be hosted at the Land, Environment, Agriculture and Forestry Department of the University of Padova, and will have access to all the excellent research facilities and infrastructures offered to PhD candidates at the Department and Campus. These facilities include those provided by the University e.g., the access to an extensive Library System (including more than 2,200,000 books and journals and 100,000 e-books), to all major scientific database and international journals (i.e. 260 online databases and 81,000 e-journals) and to the University’s data storage network; as well as those provided by the Department, e.g. a working station with personal desk, PC, telephone, printer, Wi-Fi access, personal e-mail, web profile on institutional website, software licenses, automatic data security back-ups and internal IT support, free access to high-quality training and academic courses.

The working group involved is in contact with ISTAT, the EC Joint Research Centre and the UNECE/FAO Forestry and Timber Section, which collect and elaborate sector statistics.

Skills and competencies for the development of the activity

- Awareness of key-policies and strategies in the field of bioeconomy (with a focus on forest-based bioeconomy) at EU level, Green Deal, Common Agriculture Policy and Rural Development Programs, etc. is welcome, as well as basic knowledge on ecosystem services.
- A background in social sciences, in particular in economics (environmental economics and public good economics) is recommended. This includes familiarity – both from a theoretical and an operational point of view – with approaches, methodologies, and tools to assess and evaluate ecosystem services and trade-offs.
- The research will require the use of a mix of qualitative and quantitative approaches therefore the candidate should be familiar with both qualitative (e.g., semi-structured interviews, content analysis, etc.) and quantitative (e.g., econometrics, basic statistics, software/tools for the assessment of ecosystem services, surveys, sampling design, etc.) research methods.
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Other courses can be useful:
- MOOC course on “Introduction to Sustainable Bioeconomy” (PerForm project)
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- Additional on-demand training to be identified in collaboration with the PhD candidate and with the possible secondment options

**Possible Secondments**

| Non-academic secondment: ETIFOR – spin off (6 months) |
| Academic secondment: AgroParisTech (3 months) |