International Conference
In the framework of the Tempus SUFAREL project
S. Pietersburg, 27-29.5.2014

The teaching framework in forest science: contribution of Padua University to the SUFAREL Project

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Outline

1. HE system related to forestry at University of Padova
   - The Bachelor courses
   - The Masters
   - The PhD

2. The Qualification Framework

3. QA

4. Conclusion

1. The UNIPD educational structure in forestry

180 credits
3 years

120 credits
2 years

1 credit = 25 hrs

1 Master Program

1 Program in Italian

2nd cycle

(2nd cycle: "Laurea magistrale")

2 Programs in Italian

1+3 Programs in English

PhD

1 Doctoral School

EC Erasmus Mundus

1 International PhD program

General objectives of teaching (national level)

Study in Italy

Three Higher Education Institutions in Italy

Agriculture, food industry and forestry

General objectives of teaching (national level)

1. provide students with basic knowledge in the field of mathematics, physics, computer science, and the scientific methods and problems of agricultural and forestry sciences;
2. develop students' capacity to conduct basic research and experimentation, as well as to use scientific literature and other sources of information from the agriculture, food industry, and forestry sectors;
3. provide students with an understanding of the economic and business systems of agriculture, food industry, and forestry sectors;
4. enable students to apply technical knowledge in the agriculture, food industry, and forestry sectors;
5. enable students to work in various agricultural and forestry sectors; and
6. strengthen the cooperation between universities and the agriculture, food industry, and forestry sectors.

Study in Italy

Three Higher Education Institutions in Italy

Agriculture, food industry and forestry
Teaching in forestry science at UNIPD

1 PhD Program (connected with an international program)
1 in Italian, 1+3 Curricula in English

- 1 MSc Forest and Environmental Science
- 1 BSc Forest and Environmental Technology
- 1 BSc Urban Forestry

5 study programs

100-120 students/yr
30+5 students/yr
20 foreign students/yr
70 Italian students/yr
70 Italian students/yr

Source: Cavalli, 2012

General objectives of teaching (Padova) (1/2)

- A clear proposal to the students: a professional profile is reached with an educational program 3+2
- Within the national targets:
  - Expert in forest management (forest inventory, forest protection, wood harvesting, marketing and processing of forest products)

General objectives of teaching (Padova) (2/2)

- Expert in environmental education
- Expert in watershed management
- Expert in management of protected areas and wild fauna
  ... mainly in a position of consultant (reduced employment opportunities as employee by the public sector), often working in mountain areas (high concentration of forest and natural areas)

BSc Forest and Environmental Technology
(coherent with a national framework which defines minimum no. ECTS for each group of subjects, the thesis, the training activity)

<table>
<thead>
<tr>
<th>Year</th>
<th>Credits</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>68</td>
<td>Math, Physics, Inorganic and Organic Chemistry, Plant and Animal Biology, Geology, Economics</td>
</tr>
<tr>
<td>2nd</td>
<td>68</td>
<td>Forest Genetics, Soil, Ecology, Forest Zoology, Forest Plant Botany, Applied Statistics</td>
</tr>
<tr>
<td>3rd</td>
<td>48</td>
<td>Forest Law, Forest Measurement, Geomatic, Forest Policy, Silviculture, Hydrology, 12 credits Elective, 4 credits English Language (B1 Threshold*), 10 credits Training Activity, 4 credits Thesis</td>
</tr>
</tbody>
</table>

* Common European Framework of Reference
MSc Forest and Environmental Science
(curriculum in Italian)
(coherent with a national framework which defines minimum no. ECTS for each group of subjects, the thesis, the training activity)

1st year
20 credits
- Ecological Land Planning, Fluvial Morphology, Applied Silviculture
- 28 credits Specialization

2nd year
26 credits Specialization
- 8 credits Elective
- 4 credits Advanced Informatics
- 4 credits English Language (B2 Vantage*)
- 30 credits Thesis

* Common European Framework of Reference

MSc Forest and Environmental Science
(specialization in Italian)

After the Bachelor the student enters the 2nd cycle where he/she has 5 +1 options (the last option is his/her personal study program officially approved by the University)

Study programs
- Forest and Environmental Science
- Land Protection
- Mountain Area Development
- Environment and Biodiversity Management
- Planning and Management of Green Areas

The structure of the new MSc Forest Science
(curriculum in English)

1st year
46 credits
- Forest Policy, Valuation and Assessment of Forest and Environmental Goods and Services, Forest and Hillslope Hydrology, Forest Landscape Management, Forest Pathology and Wood Alterations, Integrated Watershed Management, Global Change and Forest Ecosystems

2nd year
26 credits

8 credits Elective
- 4 credits Advanced Informatics
- 4 credits English Language (B2 Vantage*)
- 30 credits Thesis

* Common European Framework of Reference
3 International MSc related to forestry
Within the ERASMUS-MUNDUS program

**MEDIOR**
- Lisbona
- Padova
- Lleida
- Porto
- Viterbo
- Valladolid
- Karadeniz (TUR)

All teaching in English (only in Montpellier: French)

**SUTROFOR**
- Copenhagen
- Dresda
- Bangor
- Padova
- Montpellier

**SUFONAMA**
- Copenhagen
- Goettingen
- Bangor
- Padova
- Alnarp

**General structure**
- **120 ECTS** 60 (1st year – 2 semesters) + 30 (2nd year – 1 semester) + 30 for the thesis
- **1st year in one university** (general topics) 2nd year of specialization in another partner university with thesis work, preferably with an associated partner
- A common field course (between the 1st and the 2nd year for SUTROFOR and SUFONAMA, between the 1st and the 2nd semester for MEDIOR): 9-15 ECTS
- Double or preferably a joint degree
- Some common online courses (Research methodologies, Climate change economics and policies, Field course preparation)

**MEDFOR**
- Lisbona
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- Viterbo
- Karadeniz (TUR)

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**MEDIOR**
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All teaching in English (only in Montpellier: French)
PhD School:
Land, environment, resources and health

- Animal science
- Managerial engineering and economic evaluation
- Crop production science
- Biotechnology and bio-chemistry
- Viticulture, enology and marketing in the wine sector

2. Qualification Framework development

- Monitoring employability
- Links with the professionals
- Links with the institutions
- Students’ evaluation
Qualification Framework

Links with the market (employment opportunities)

What is the profile of the graduate from your University, your Faculty, your course/program, etc.?

- Degree: Bachelor or Master
- Field: Agriculture, Forestry, Environmental Science
- Language: English, Italian, French
- Duration: 3-4 years full-time

4. Employment opportunities

- Agricultural sector
- Forestry sector
- Environmental consulting
- Research institutions
- International organizations

5. Key skills

- Analytical skills
- Problem-solving ability
- Communication skills
- Teamwork

Qualification Framework

Links to the professionals

- Good and frequent links with the Association of Chartered Agronomists and Forests:
  - they are invited to make comments and suggestions on the Bachelor and Master courses organization
  - Moreover, to practice the professional activity, post-graduates have to pass a State examination organized by a mixed Commission with a majority of members from the Association → direct control of the contents and acquired knowledge of the young graduates

Qualification Framework

Links with the institutions

About: MEDITERRANEO

MEDITERRANEO - Mediterranean Forestry and Natural Resources Management

A two-year post-graduate program that provides students with a broad scientific foundation and the competencies for careers in innovative fields of work within the Mediterranean forestry-agriculture. It will both provide the basis needed for debate and curricular opportunities and the qualifications needed to fill positions in all Mediterranean countries and internationally.

The MEDITERRANEO Consortium is supported by a consultation panel that includes leading international research and outreach organizations in all scientific areas of interest to Mediterranean forestry and natural resources management. The six associated partners are: Mediterranean Forest Network - National office (MFNNO), Euroforest - Forest Sector Observatory, Mediterra - Forest Technology Center, Forest Research Institute of Cyprus (FRI), Forest Research Institute of Malaysia (FRIM), and the International Centre of Advanced Mediterranean Agronomic Studies (ICAMAS) - Mediterranean Agronomic Institute of Cassino (Italy).

This consultation panel is coordinated by PROFED, and in order to safeguard and strengthen the interest of MEDITERRANEO with stakeholders and the Mediterranean forest community, it further includes key stakeholders such as: the Mediterranean Forest Network - National Office (MFNNO), the World Wildlife Fund Mediterranean Office (WWF-IT), the Association International Union for Mediterranean Forest (AIUM), and the Food and Agriculture Organization (FAO).
Qualification Framework
The students’ course evaluation

An example of the positive loop research-market-
teaching-creation of new employment opportunities

3. Quality Assurance
the process of accreditation (international context)

| ENQA | The European Association for Quality Assurance in Higher Education disseminates information, experiences and good practices in the field of QA in higher education to European QA agencies, public authorities and higher education institutions |
| ESG | Standards and Guidelines for Quality Assurance in the European Higher Education Area |
| EQAR | The European Quality Assurance Register for Higher Education, established in 2008 to increase the transparency of quality assurance in higher education across Europe |

Demand from the wood industry

Research on CSR at university

Companies and NGO in the C voluntary market

Teaching

Expertise creation at the university
Quality Assurance
the process of accreditation (international context)

- ENQA
  www.enqa.eu
- ESG
  www.esg.eu
- EQAR
  www.eqar.eu

28 National QA
Agencies registered

Quality Assurance
the process of accreditation (national system still
in progress)

- Internal evaluation by
  the Dept.
- External accreditation
  (for 5 years)
- Public funding
to the University

- AVNUR’s criteria
  - endorsed by the Ministry
  - defined in coherence with the EHEA’s
    Standards and Guidelines for Quality
    Assurance in the European Association
    for Quality Assurance in Higher
    Education

- Periodical
  internal evaluation

4. Conclusion

• From a training aimed to educate the future official of the
  forest administration (till the ’80s) to a mix of
  professional profiles:
  • forest professional working mainly as a self-employed consultant
  • forest officers for many public organizations (NPs, research
    organizations, …)
  • forester working in NGOs and companies (wood working,
    certification, …)
• In the forestry sector the first cycle (i.e. Bachelor) has only
  a role of defining a background, solid, scientific basis for
  the Master: the proposal for the students is 3+2 as one
  single co-ordinated program
• More professional, specific knowledge is acquired in the
  2nd yr of the Master
• Focus on soft skills (communication, work in groups) and
  future learning skills

Source: Castagnaro, 2012
• Still very **dynamic, unstable** and not consolidated experiences

• With a continuous process of integration, **challenging problems** to be considered:
  – Problems related to **internal governance**
  – Problems related to **general context of governance**

This presentation can be downloaded from: www.tesaf.unipd.it/pettenella/