ESCAPAdE
Erasmus Curricula in Applied Plant Sciences

PROCEDURES AND STANDARDS

OF THE QUALITY LABEL ON

APPLIED PLANT SCIENCES

Version 2

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Contents

1. Introduction

This document sets out the procedures and standards to award the quality assurance label on Applied Plant Sciences as defined by the ESCAPADE project. Only master's degrees can apply to this label.

The main objective of this label is to facilitate recognition of specific qualifications within the European Higher Education Area and with other education systems, and to provide the ground to raise the quality of programme degrees within the Applied Plant Sciences area.

The procedures to obtain the label are defined in section 2 and the standards are described in sections 3 and 4, respectively of generic and subject specific standards. Template for the assessment reports are available in the annexes.

All the steps of this document can be further detailed when the QAPS label will be applied after the end of the project ESCAPADE. More detailed guidelines on writing the reports (SAR and FAR), guidelines for visits, guidelines for the selection of assessors, etc., can be expanded.

2. Assessment procedures

The QAPS assessment procedure follows the best practices of external quality assurance in Europe, which are defined in chapter 2 of the European Standards and Guidelines for Quality Assurance in the European Higher Education Area. It starts with the submission of the self-assessment report (SAR) by the applicant university-programme degree that wished to apply for the QAPS award. Based on the SAR and an onsite visit, the experts will provide an assessment of the generic and subject specific criteria of the QAPS label. Finally, a decision on awarding the label will be taken by an independent Accreditation Commission established for the purpose of awarding the QAPS label.

2.1. Request by the applicant university-programme degree

A request by the applicant university-programme degree must be submitted to the organization in charge of awarding the QAPS label. QPAS can only be awarded to master's degrees that can be classified as an applied plant sciences programme. The applicant should indicate a planned date to submit the SAR.

2.2. Peer-review experts

After the submission of the application for the award, the Accreditation Commission will select experts from professors of recognized competence in the topic, representative from the

industry/farmers and a student, according to ESG2015-Part 2. All experts should have experience or have been trained in accreditation procedures.

The experts will evaluate the programme based on the SAR and on the onsite visit and will produce a final assessment report that will be used by the Accreditation Commission to decide on the award.

All experts must confirm that they have no conflict of interest with the University applying for the award. If the University considers that there is a conflict of interest with any of the experts, the respective experts will be substituted by the Accreditation Commission.

2.3. Self-assessment report

The self-assessment report should provide all the necessary information to prove that the programme degree complies with the generic and subject specific criteria identified in sections 3 and 4. Some more details on the contents of the SAR are suggested in Annexes I to III. The experts will read the SAR before the visit and may ask additional details to the applicant, before, during or after the visit if needed.

The SAR must be made available to the experts, in electronic version, at least two months before the visit.

2.4. Onsite visit

The onsite visit should take between 1 to 1 ½ day long during the academic year to enable to meet all the relevant participants. It will include a visit to the facilities and meetings with all involved in the degree, from the Rector or Dean, representatives of teaching and non-teaching staff, students, and stakeholders, and statutory bodies. The visit will help the experts to confirm information made available in the SAR and additional details relevant to the teaching and learning environment. Opportunities will be given to staff and students to provide confidentially information that they may not which to provide in public.

2.5. Final assessment report

The final assessment report (FAR) must be ready 2 months after the onsite visit and it must contain detailed arguments about each of the criteria listed in sections 3 and 4 of this report (see Annex IV and V). It will be sent to the University for contradictory before being sent to the Accreditation Commission. The University has 1 months to send comments on the report and

provide evidence against any weakness of the programme pointed out in the report by the peer-review experts.

2.6. Accreditation Commission decision

Based on the FAR and the feedback of the University, the Accreditation Commission will decide on:

- QAPS awarded without any conditions or recommendations
- QAPS awarded with requirements to be met within 1 year
- QAPS deferred until conditions defined by the panel have been met

2.7. Appeal process

If the University does not agree with the decision of the Accreditation Commission, it can appeal in writing within 1 month after having received the decision, providing additional evidence of the compliance with the QAPS criteria. The Accreditation Commission will nominate two of its members and the University can nominate one peer-review expert to review the SAR and the FAR to reevaluate the incompliances.

The appeal process report (APR) will be reappreciated by the Accreditation Commission that will take one of the three possible decision referred in section 2.6.

3. Generic criteria based on the European Standards and Guidelines for Quality Assurance

QAPS label requires the programme degree to follow Part 1 guidelines of ESG 2015 - Standards and guidelines for internal quality assurance. These are related to:

1.1 Policy for quality assurance

1.2 Design and approval of programmes

1.3 Student-centred learning, teaching and assessment

1.4 Student admission, progression, recognition and certification

1.5 Teaching staff

1.6 Learning resources and student support

1.7 Information management

1.8 Public information

1.9 On-going monitoring and periodic review of programmes

1.10   Cyclical external quality assurance

The SAR must contain all information necessary to verify the accomplishment of these standards and the peer-review experts' team must assess it in their FAR.

4.   Subject specific criteria: learning outcomes for Applied Plant Sciences

Additional to the standards identified in section 3, master's degrees (level 7 of the European Qualifications Framework) on Applied Plant Sciences applying to the QAPS label must comply, overall, with the standards of learning outcomes here listed. These are divided in five broad subjects:

1.   Genetic resources and plant breeding
2.   Plant health
3.   Plant production
4.   Methodological skills
5.   Soft skills

4.1. Genetic resources and plant breeding

1.   Illustrate the origin and driving forces of biodiversity in an evolutionary context, particularly for conservation, management and utilization of plant genetic resources.

2.   Explain the basics of Mendelian, quantitative and population genetics, as well as epigenetics, and their relevance for plant breeding.

3.   Use the breeders' equation on genetic gain to predict and assess the improvement in average genetic value of a population with each cycle of selection.

4.   Compare the key breeding methods and strategies for crops, depending on their mode of reproduction and socio-economic context.

5. Identify key processes controlling product profiles (sustainable productivity, adaptation and quality) and relevant phenotyping methods.

6. Identify, critically evaluate and apply new phenotyping, molecular genetic -, biotechnology - and genomic tools in a crop improvement context, through big data analysis.

7. Investigate in innovative varietal structures and diversity as a lever for a multiservice integrated agriculture tackling global changes

8. Be aware of the technical, societal and legislative challenges related to varietal innovations, e.g. plant and seed certification, GMO regulation, plant breeders' rights, international treaties, conservation of and access to genetic resources, benefit sharing, sustainability, ethical and societal issues, in a context of global challenges.

4.2. Plant health

1. Describe the basic principles underlying pest (animals, pathogens, weeds)-plant interactions, their effects at the organism and population level as well as practical implications in crop protection

2. Describe the sanitary state of a crop and identify and describe the main players (pests and antagonists/endemic and invasive)

3. Develop protocols for integrated pest management and organic production systems

4. Evaluate crop protection strategies and understand their benefits and limitations in respect to efficacy, environmental and social impact

5. Discuss the genetics and evolution of pests' resistance to pesticides and plant defense and propose the appropriate measures to delay resistance development

6. Describe approaches and tools for enhancing functional biodiversity ecosystem services considering the complexity of agroecosystems

7. Identify the sources of agricultural pollution, address environmental problems and identify factors that deteriorate the agroecosystems

8. Be aware of the national and EU regulation for plant protection products, biological control agents and quarantine organisms

9. Exemplify the impact of climate change on pest population dynamics and expected yield losses

4.3. Plant production

1. Identify the use of relevant crops in a specific region, including minor crops.

2. Prioritize appropriate crops and cultivars within crops for cultivation in a specific agro-ecological situation.

3. Identify the principles of horticultural and fruit production technologies.

4. Combine plant physiology, plant growth and development knowledge as well as the requirements of important crop plants concerning their growing conditions.

5. Apply, on specific crops, knowledge on seed and plant propagation, nutrition, irrigation and crop management.

6. Able to define different cropping systems, and be able to apply this knowledge on managing crops.

7. Recommend suitable agricultural mechanization including modern digital tools for different agroecological conditions.

8. Apply integrated knowledge for planning and managing crop plant production in a sustainable and resource efficient way for a specific region.

9. Recommend crop management for a specific quality of the product.

10. Apply principles of mathematical modelling and the application of digital technologies in crop production and apply models for forecasting and advisory purposes.

4.4. Methodological skills

1. Identify issues and knowledge gaps related to agriculture, environment and food production and formulate a relevant research question/hypothesis.

2. Search, retrieve and integrate scientific information in the relevant discipline with critical thinking to describe, analyze and solve practical problems in plant sciences.

3. Design an appropriate experiment (e.g. field, greenhouse, lab, ...) for testing this hypothesis.

4. Conduct research in a suitable and secure manner, following appropriate techniques and protocols and registering all activities.

5. Analyze the obtained data with appropriate statistical methods to interpret the results.

6. Draw evidence-based conclusions that feed into recommendations.

7. Share the results and outputs in a compelling and convincing manner using innovative skills and techniques.

4.5. Soft skills

1. Communicate knowledge through written and oral presentations at a scientific-technological level to national and international audience.

2. Share knowledge with stakeholders, including farmers, understand and value their traditional knowledge and experience but also their questions and concerns, analyze their situations and get involved in participatory ways towards problem solving.

3. Interact as a team player effectively with peers, mentors, and the larger community through internships, teamwork activities, proposals and presentations.

4. Lead a working group by using the appropriate management techniques.

5. Acknowledge ethical issues at work, including research and publication of research results.

6. Discuss ethical issues related to plant science, *inter alia* on GMOs, IPRs, biodiversity conservation, access and benefit sharing related to traditional knowledge or invasive species.

7. Have a critical and innovative attitude to address complex global challenges in agriculture for sustainable development.

8. Build a professional development plan and demonstrate job searching skills.

Annex I - Self-assessment report template

1 Formal Data
   Name and contact details
   Name of the degree programme (language of the economic region)
   Name of the degree programme (English)
   Language of instruction
   Contact person
   - E-mail
   - Telephone number
   - Fax
   Web address (of the institution, faculty, school or course)
   Degree to be awarded
   Standard period of study
   Commencement of degree programme
   Fees / charges

2 Policy for quality assurance

3 Design and approval of programmes

4 Student-centred learning, teaching and assessment
   (facilities, equipment, methodologies)

5 Student admission, progression, recognition and certification

6 Teaching staff

7 Learning resources and student support

8 Information management

9 Public information

10 On-going monitoring and periodic review of programmes

11 Cyclical external quality assurance

Annex i Module handbook

Annex ii Alignment table with QAPS learning outcomes

Annex II – Module handbook

Module name	
Module level, if applicable	
Abbreviation, if applicable	
Sub-heading, if applicable	
Classes, if applicable	
Semester	
Module coordinator	
Lecturer	
Language	
Classification within the curriculum	For all degree programmes in which the module is taught (including those being discontinued), indicate the degree programme, area of specialisation (where applicable), compulsory / optional, semester.
Teaching format / class hours per week during the semester	Indicate the number of class hours per week during the semester and group size, broken down by teaching format: lecture, exercise, lab, project, seminar, etc.
Workload	(Estimated) workload divided into face-to-face teaching and independent study, in hours.
Credit points (ECTS)	
Requirements under the examination regulations	
Recommended prerequisites	e.g. prior knowledge
Targeted learning outcomes	Basic question: Which learning outcomes should be attained by students in the module? e.g.: - Knowledge: information, theoretical and/or factual knowledge - Skills: cognitive and practical skills which make use of the knowledge - Responsibility & Autonomy: integration of knowledge, skills and social and methodological abilities in work and study situations. Example: "The students know / are able to…"
Content	The description should indicate the weighting and level of the content.
Study / exam achievements	
Forms of media	
Literature	

Annex II - Alignment table with QAPS learning outcomes

Corresponding QAPS learning outcome	Programme learning outcome	Module developing learning outcome	Type of assessment (oral presentation, report, written exam etc.)	Teaching and Learning Activities (lecture, project etc.)	Extent of alignment with QAPS learning outcome
LO1		Module A			
		Module B			
		…			
LO2		Module A			
		Module B			
		…			
…					

Annex IV – Final assessment report template

1   Policy for quality assurance

2   Design and approval of programmes

3   Student-centred learning, teaching and assessment
     (facilities, equipment, methodologies)

4   Student admission, progression, recognition and certification

5   Teaching staff

6   Learning resources and student support

7   Information management

8   Public information

9   On-going monitoring and periodic review of programmes

10   Cyclical external quality assurance

11   Accomplishment of QAPS learning outcomes

Annex V - Template for publication of results

1. Higher Education Institution (name in original language and in English)
2. Country
3. State/Province (where applicable)
4. Name of the Programme (name in original language and in English)
5. Degree Awarded
6. Qualification Level: EQF level 7
7. Programme Objectives; Profile (where applicable)
8. Programme Duration (Semesters; in case of "terms" of different length, indicate them and the equivalent in semesters)
9. Total Number of ECTS Credits Awarded
10. Accredited without /with Adjustment Requirements
11. Adjustment Requirements (where applicable)
12. Accredited by (agency, country)
13. Accredited (from … to…)