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Quality assessment

COURSES REVISED AND NEWLY CREATED BY PARTNER P6 (SIBERIAN FEDERAL UNIVERSITY)

Work Package 2

QUALITY ASSESSMENT BY EU PARTNERS (PARTNER P3: ESTONIAN UNIVERSITY OF LIFE SCIENCES)

New Course: "Biogeochemistry of Permafrost Landscapes"

QUALITY ASSESSMENT
Quality criteria 1: Number of credit units for lectures, practical sessions and self-learning are appropriate to the contents
• *Evaluation* The course includes 4 hours for lectures, 2 hours for in-class discussions, 12 hours for practical lessons, 40 hours for self-studying, 50 hours for reading, and preparation for lectures. The amount of hours assigned for lectures and theoretical instructions is enough to present the necessary concepts for practical activities. A larger amount of credits for practical lessons and self-studying is an effective approach to promote practical-oriented, more independent and problem-solving professionals. Also, the credits for in-class discussions are important to promote further reflexive thinking on the studied theory and its applications. Altogether, the number of credits assigned for each activity is appropriate to their contents. • *Strategies for improvement* None.
Quality criteria 2: Total number of credit units in the course is correct and appropriate
• *Evaluation* The course estimates a workload of 108 hours and awards 3 ECTS for its conclusion. Therefore, the total number of credit units in the course is incorrect. • *Strategies for improvement* The number of credits for each activity (lectures, practical lessons, and self-studying) was evaluated as well distributed. Thus, increasing the number of ECTS should be considered. Given that 1 ECTS is equal to 28 hours, the number of credits awarded by course should be 4 ECTS (108/28≈3.85).
Quality criteria 3: Positioning of the courses in Curricula is appropriate based on the progressive level of difficulty
• *Evaluation* The target student audience for this course is last year MS's students in ecology (majoring in environmental sciences). Due to the considerable complexity of the course topic, it shall require some understanding of background knowledge (such as the suggested prerequisite courses), which has to be acquired during the previous year. Therefore, the positioning of the course in the curricula is appropriate. • *Strategies for improvement* None.
Quality criteria 4: Tests are suitable and appropriate to support transferable skills
• *Evaluation* The course learning outcomes are the following: (1) to give students sampling skills in the principles and approaches of biogeochemical zoning of geographical areas; (2) to study the biogeochemical processes of geographical zones, in particular, permafrost landscapes; (3) to give information about development and current state of permafrost; and (4) to introduce the response of permafrost landscape biogeochemistry to warming. Additionally, the course set the following assignment weights: 50% for personal class assignments; 30% for final examination; and 20% for home assignments. Not many details about the test are given in the syllabus. However, the higher weight attributed to the

practical assignments (class and home assignments) is a positive aspect for promoting, developing, and assimilating the transferred skills. In addition, the final exam at the end of the course is useful to assess the number of transferred skills, in comparison with the skills before the course. Altogether, individual and group assignments may offer ways for providing sampling skills and approaches of biogeochemical zoning (outcome 1) and studying biogeochemical processes (outcome 2); and the discussion and final exam may assess students' ability to give information about development and current state of permafrost (outcome 3) and how to respond to environmental changes (outcome 4). Therefore, the proposed tests are in general appropriate to support the transferable skills and to achieve the learning outcomes.

- *Strategies for improvement*

For a better assessment (of the transferred skills and teaching method), more detailed description of the proposed test and assessment strategies could be provided. For example, using rubrics to assess the students' performance in qualitative tests, or peer-review for class assignments, etc. This kind of further details could allow for better planning of activities and evaluations.

Quality criteria 5: TLM and assessment strategy support students in undertaking the course i.e. prerequisites are helpful and relevant, assessments helps gauge students understanding etc.

- *Evaluation*

The course's prerequisites are "good level of geology", "pedology", "ecology", and "landscape sciences". These topics are relevant as background for the studies of biogeochemical processes in different landscapes, including permafrost. However, it may be still necessary some basic knowledge in "chemistry" and "statistics", especially for practical/analytical lessons. Also, the recommended literature includes both well-established material and recent discussions about the topic. Thus, TLM is appropriate for supporting the understanding of basic concepts, principles, recent context, and its temporal evolution. Finally, there is a mix of assessment strategies that may support students with different learning skills. Therefore, the assessment strategy and TLM are helpful and relevant for gauging students' understanding, while modifications in the prerequisites set up should be considered.

- *Strategies for improvement*

Consider including "chemistry" and "statistics" background as prerequisites for the course.

Quality criteria 6: Theory/Practice-oriented components are sufficient to cater the learning outcomes and skills development

- *Evaluation*

The theoretical lectures include the necessary background for learning basic terms and principles, specifics biogeochemical cycles, and human interactions in permafrost landscapes. Practical lessons allow the application of concepts and critical assessment of some usual situations in the management of these landscapes. The higher number of hours attributed to practical activities highlights the key role of this kind of activity for promoting the learning outcomes and skills development. Therefore, the theory/Practice-oriented components are sufficient to cater to the learning outcomes and skills development.

- *Strategies for improvement*

Catering could be improved by using diversified assessment strategies to measure the learning outcomes. For example, using rubrics to assess the students' performance in qualitative tests or peer-review for class assignments, etc.