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BC TOOLBOX

Boundary Crossing assessment in Master Biobased Sciences

In the Master programme Biobased Sciences of WUR, boundary crossing is operationalised as a parallel course (I.e., 'lintvak') that runs throughout the whole programme, parallel to other courses. Using assignments and reflections developed in several courses, students reflect on the boundary crossing skills and development. These reflections are collected in a portfolio and finalised with an assessment interview afterwards. Rubrics to assess the BC reflection reports as well as the BC assessment interview are included.

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Link to BC/place on taxonomy
Boundary crossing competence development, showcases, boundaries – interdisciplinary, learning mechanisms – general

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Boundary Crossing assessment in Master Biobased Science

Parallel course running through the whole Master Program
Boundaries addressed: different disciplines

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This document contains the assessment strategy and two rubrics for assessing the reflection reports and the assessment interview

Assessment strategy (I.e., what does the assessment consist of)

- written portfolio containing at least 4 reflection reports on the value of combining biobased disciplines (parts / aspects that were not yet graded in earlier courses 50%);
- oral justification of disciplinary boundary crossing development, using the reflections in the portfolio, during an assessment interview (50%).

This course has its own Brightspace (I.e. Electronic learning environment). In this Brightspace, the reflection reports of the indicated courses can be uploaded. Note: These reflection reports can also be part of the assessment of the respective courses, though partly using different criteria. For this Boundary Crossing course, these reflection reports must be uploaded and are assessed on the criteria of crossing disciplinary boundaries (see rubric 1) and graded as > 5.5 (pass/no pass). At least four reflection reports should be uploaded, with the option for a firth product/reflection report showing/supporting the students interdisciplinary competence.

Questions that can be part of the reflection reports that might help students to reflect on their interdisciplinary boundary crossing learning are:

- What was my own disciplinary perspective on the issue? (I)
- What theories, approaches or methods would I use to deal with this issue? (I)
- How did another disciplines view the issue? (I)
- What did I learn from the other perspectives and approaches? What conflicting of similar ideas came to light when combining these disciplinary views? (R)
- How did we collaborate to actually integrate our perspectives? (C)
- How did our perspectives strengthen each other? (R)
- What was the added value of integrating these different disciplines in your suggested solution? (T)
- What trade-offs were made to embrace different disciplinary perspectives?

Note: I-C-R-T refer to boundary crossing learning mechanisms. This will be explained during the course , e.g. with BC-knowledge clips

At the end of this trajectory, the students will have an individual oral assessment interview with a teacher of his/her specialisation. During this interview the student justifies and exemplifies his/her *development* with respect to the three interdisciplinary learning outcomes. This interview will be assessed on the three BC learning outcomes using a rubric (see rubric 2).

Questions that can be addressed in this interview relate to:

- How have you developed you own boundary crossing competence during this MSc program?
- How did you improve your ability to learn and work with across disciplines?
- How and what have you learned regarding working in interdisciplinary teams and crossing bridges between disciplines?
- What did you learn about your own discipline by working with other disciplines?
- How will you approach interdisciplinary work in the future?
- How does interdisciplinarity add value to biobased problems?

Assessment strategy

Intended learning outcomes	Reflection circular ec	Reflection ACT	Reflection specialisation	Reflection Thesis	Optional piece of evidence	Assessment interview
1. Cooperate in an interdisciplinary team (including planning activities, assuming responsibilities and motivating co-workers) on a biobased-oriented research question, design problem, or development problem		x	(x)		(x)	x
2. Assess technological , ethical, societal, and economic consequences of changes in the design of a biobased concept, product, or product process, and integrate these into scientific work within an interdisciplinary and international context;	x	x	x	x	x	x
3. Create additional value by combining biobased disciplines thus to apply an interdisciplinary approach	x	x	x		x	x

Rubric 1: assessing disciplinary boundary crossing in the reflection reports

Student can/should use concrete examples from the respective course to discuss and reflect on their interdisciplinary learning and working.

	5	7	9
Team work ***(only if applicable)***	Student does not reflect on the usefulness (or challenges) of interdisciplinary team	Student mainly reflects on challenges of the team work not directly related to different disciplinary backgrounds	Students reflect on the learning opportunities of using the different disciplines in the team
Different disciplinary perspectives	Issue is mainly described and tackled from one disciplinary perspective	At least two disciplines are explicitly integrated	More than two disciplines are integrated
Added value for the project/product	Added value of combining different disciplines is not explicitly reflected upon or remains shallow/not concrete	Student reflects on the added value of different disciplines, mainly describing how different disciplines were used in the project/product	Student gives concrete examples on how different disciplines are integrated to create added value
Added value for Personal/professional development	Student does not reflect on how he/she developed his/her (disciplinary) perspective on the issue at hand	Student discusses several new insights gained during the course representing different disciplinary perspectives	Students describes with concrete examples how own ideas changed / were elaborated during the course And how to use / exploit this in the future

Rubric 2: Assessment interview on disciplinary boundary crossing

The interview aims to discuss students *development* throughout the MSc program. The student should use concrete examples from various courses to show / discuss this development.

	5	**7** *Relating to concrete examples from previous courses*	**9** *Using concrete examples from previous courses to discuss development* *Looking towards the future.*
Approach to interdisciplinary project	Student cannot explicate how he/she approaches an interdisciplinary problem	Student explains how he/she approaches an interdisciplinary project. How this approach developed during the Master Programme is not clear	Student explains with concrete examples how he / she improved in approaching interdisciplinary issues during the Master Programme
Added value of interdisciplinary working for dealing with societal issues	Student has difficulties with viewing issues from different perspectives	Student discusses added value of working across disciplines for different projects	Student discusses opportunities for creating added value using an interdisciplinary approach (i.e how to do this in future projects)
Added value of interdisciplinary working for own personal / professional development	Student has difficulties with relating interdisciplinary experiences to his/her own personal or professional development	Student can give a few small examples of how working on interdisciplinary projects/teams influenced him/herself	Student can give concrete examples on how he/she has grown as a person or professional due to interdisciplinary working and how to exploit this in the future
Working in an interdisciplinary team	Student cannot discuss opportunities of interdisciplinary teamwork or how he/she stimulated interdisciplinary working in a team	Students gives examples of own team behaviour that stimulated interdisciplinary working	Student expresses how he/she would approach working in interdisciplinary teams in the future, by building on experiences during the Master programme.

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