Trends in Forest and Nature education, Wageningen University 2000-2013
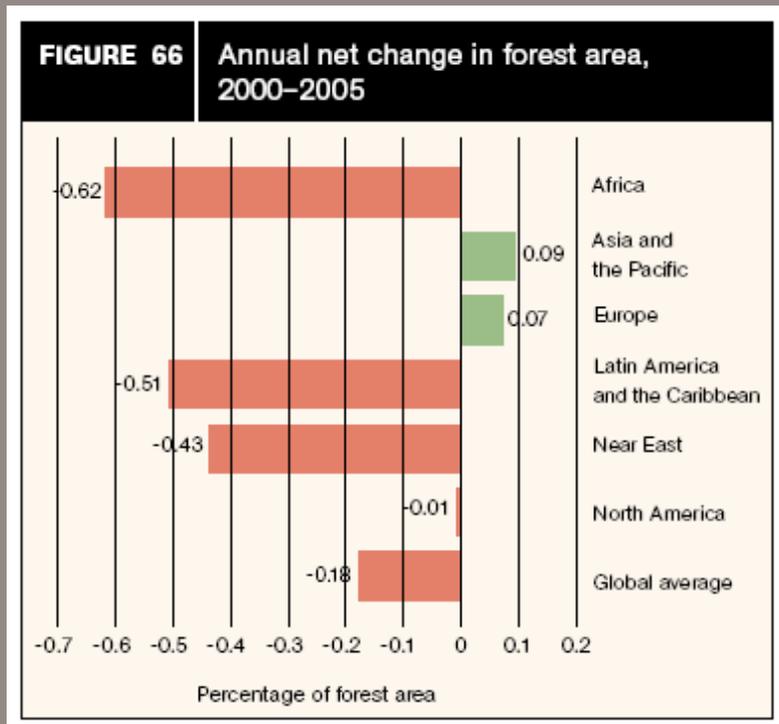
Gerrit Epema
Programme Director

Contents

- Changes 2000-2003 and 2003-2013

- Intake BSc and MSc

- BSc learning outcomes and set-up, teaching-learning

- MSc learning outcomes and set-up, teaching-learning

- Internationalisation

- Assessment

- Challenges 2013-2015

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Changes 2000-2003

- 5 yr Forest and Nature programme -> 3yr BSc (NL) and 2 year MSc (UK)

- Tropical Forestry stop -> Merged in MSc Forest and Nature Conservation

FIGURE 66 | Annual net change in forest area, 2000–2005

	Percentage of forest area
Africa	-0.62
Asia and the Pacific	0.09
Europe	0.07
Latin America and the Caribbean	-0.51
Near East	-0.43
North America	-0.01
Global average	-0.18

2003-2013

- Yearly modification:

  - vision

  - react on changes in science and society

  - react on regulations EU, NL and WU;

  - programme and course evaluations.

Now: Ecological and Social Sciences equally important; all students need to know about ecological functioning + social, economic and political context
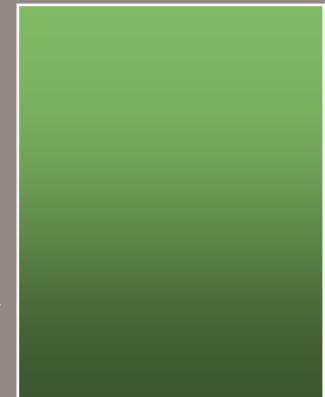
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2003-2013

- Now: Ecological and Social Sciences equally important; all students need to know about ecological functioning + social, economic and political context

- 2 Specialisations BSc, 3 specialisations MSc

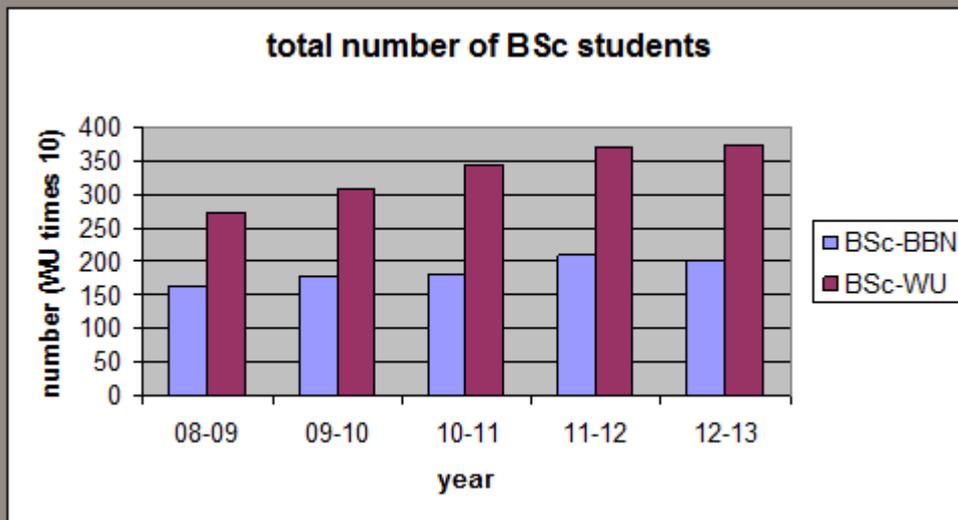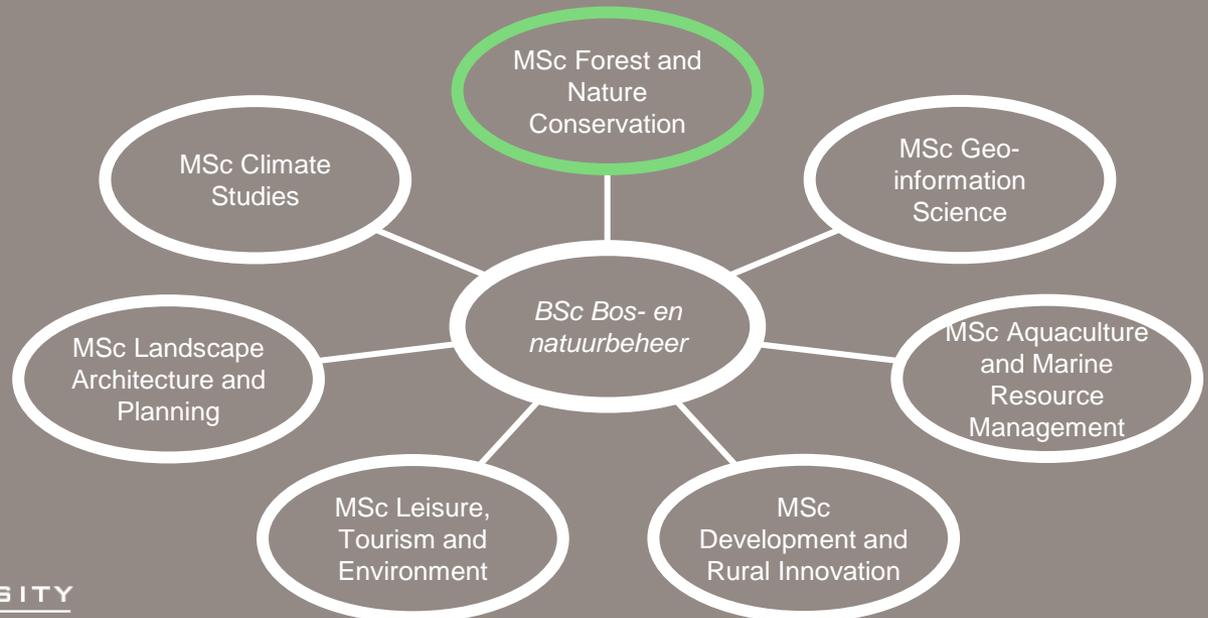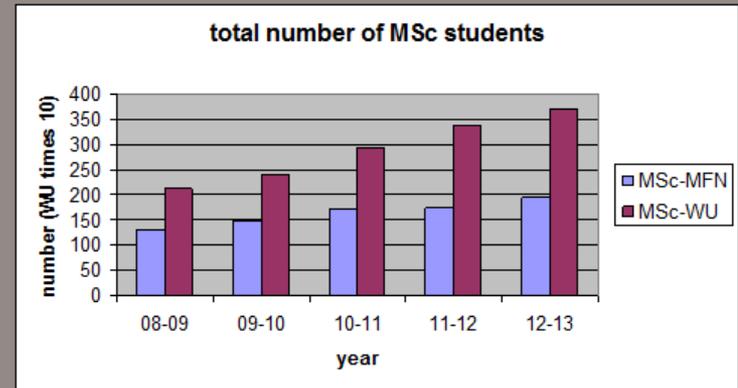**Society**

Manageme nt

Ecology

INTAKE BSc

- BSc 40-> 60

- Man: Woman BSc 2:1 (2012)

- Interest Forestry stable; increase interest in Nature, especially wildlife management / animal ecology

total number of BSc students

INTAKE MSc

- MSc outside WU: 10->50

- MSc background: biology, environment, wildlife management, forestry, social sciences (after pre-master/minor)

- Man: Woman MSc 1:1 (2012)

- Decrease intake from own BSc

- Now: 1/3 own BSc, 1/3 international, 1/3 other Dutch BSc/Ba

total number of MSc students

MSc Forest and Nature Conservation

MSc Climate Studies

MSc Geo-information Science

BSc Bos- en natuurbeheer

MSc Landscape Architecture and Planning

MSc Aquaculture and Marine Resource Management

MSc Leisure, Tourism and Environment

MSc Development and Rural Innovation

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BSc-Learning outcomes

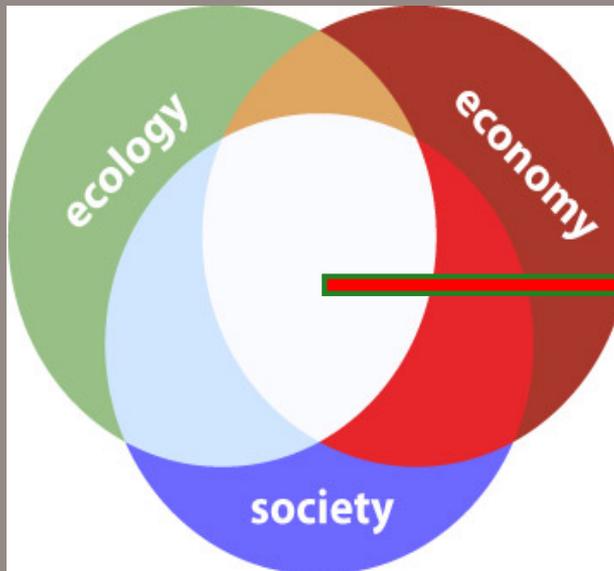|			After successful completion of the programme graduates are expected to be able to	**Dublin Descriptors**
Domain-specific learning outcomes		1	Explain the functioning of forests and natural areas as social-ecological systems at different temporal and spatial scales.	Knowledge and understanding
		2	Analyse the major biotic and abiotic components of terrestrial ecosystems and identify the most important dominant and indicator species from North-Western Europe.	Applying knowledge and understanding
		3	Analyse the different actors and institutions related to forests and natural areas	Applying knowledge and understanding
		4	Analyse the process of decision-making and the effects of actions and interventions on the main ecosystem processes and components.	Applying knowledge and understanding
		5	Analyse concepts, approaches and methods and reflect upon scientific literature, with special reference to the resource use of natural and semi-natural ecosystems.	Applying knowledge and understanding
		6	Analyse a problem in the field of forest and nature conservation by applying elementary skills in research planning, collecting, processing and interpreting data and scientific literature, and placing results in a wider context.	Applying knowledge and understanding Making judgements
		7	Evaluate management decisions incorporating ecological, economic and social aspects in resource use.	Making judgements
General learning outcomes		8	Present results of scientific analyses to experts and non-experts both orally and in writing, and demonstrate the ability to work in a multidisciplinary team.	Communication
		9	Explain the relationships between science and practice and reflect on the role of science in society, including a reflection upon own thinking and work.	Knowledge and understanding Making judgements
		10	Design and plan their own learning path (under supervision).	Learning skills
Major-specific parts		11a	(*Policy and Society*) Assess the key components of social systems in relation to forests and natural areas	Knowledge and understanding
		11b	(*Ecology and Conservation*) Assess and apply ecological theories, using understanding of plant and animal biology, and environmental interactions.	Knowledge and understanding

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BSc Set-up: Major-Minor system

- BSc: ½ year free choice / minor -> large student mobility (WU, NL, EU)

- BSc 2 majors: (1) policy and society; (2) ecology and conservation

Period	1	2	3	4	5	6
Phase						
B1						
B2						
B3						

Common courses (87)
Integrating common courses (21)
Major-specific courses (30)
Thesis (12)
Minor (30)

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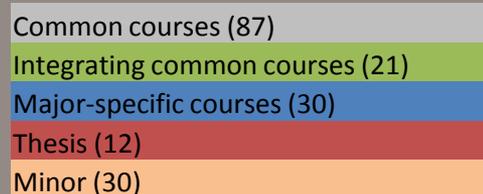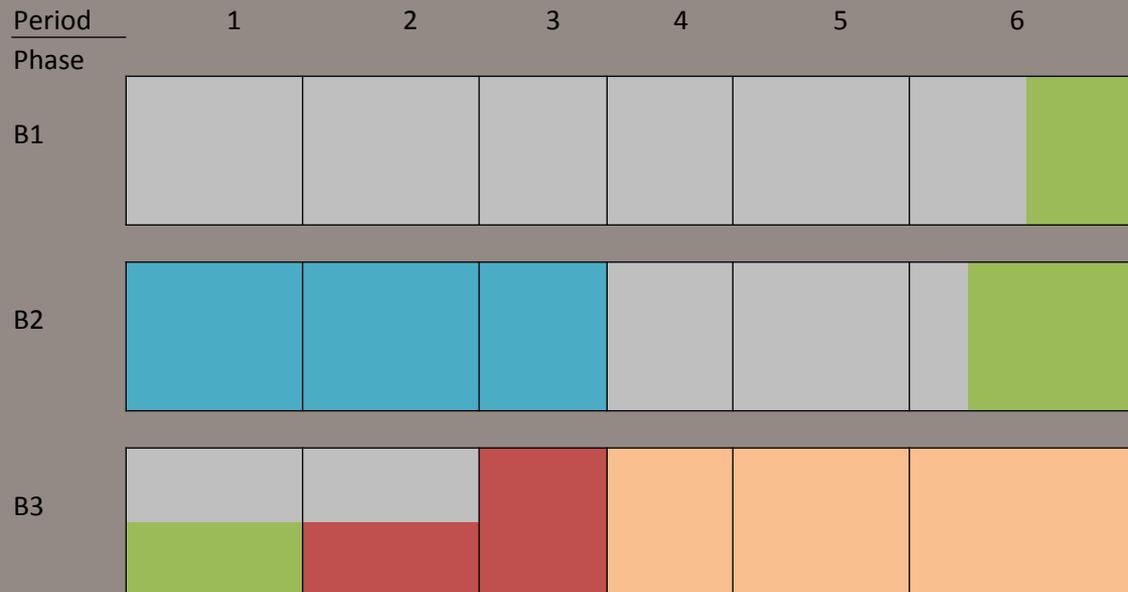
BSc teaching –learning

- Mix teaching and learning

- Theory and practice combined

- 50% contact, 50% own work

- Fieldwork illustrate – own experience

- Tutorials

- E-learning environment

Lectures
Tutorials
Practical
(Field) excursions
Group work
Supervision individual assignments

Contact hours

ecology
economy
society
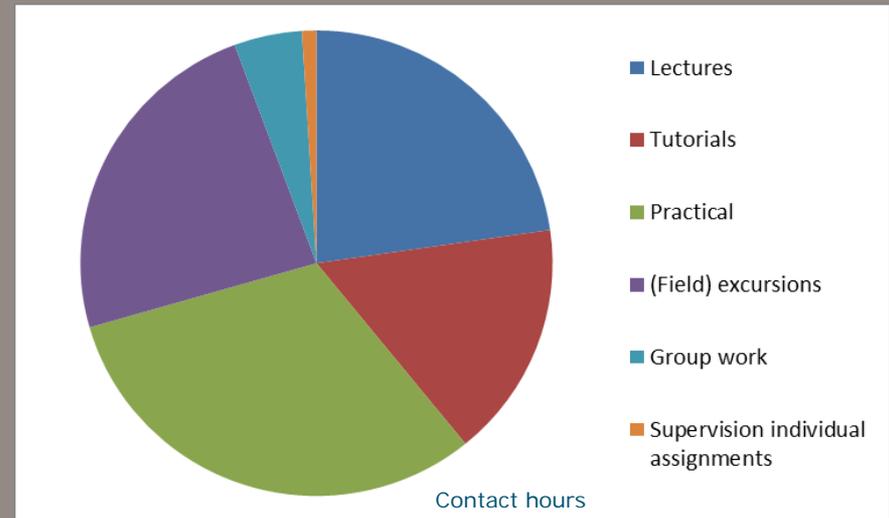
MSc – Learning outcomes

		After successful completion of this programme graduates are expected to be able to:	Dublin Descriptors
Domain-specific learning outcomes	1	Analyse the functioning of forests and natural areas within their social-ecological context at different temporal and spatial scales.	Applying knowledge and understanding
	2	Evaluate social and policy practices with regard to the use, management and conservation of forest and natural areas. (specialization policy and society).	Applying knowledge and understanding Making judgements
	3	Design and asses realistic and feasible management options for forests and natural areas, based on specific knowledge and understanding of wildlife management, management of forests or other terrestrial vegetation (specialization management).	Applying knowledge and understanding Making judgements
	4	Create and asses new contributions to the knowledge of ecological processes and functioning in terrestrial ecosystems (specialization ecology).	Applying knowledge and understanding Making judgements
	5	Formulate and execute research in the field of forest and nature conservation in accordance with academic standards.	Making judgements
General learning outcomes	6	Communicate clearly - both orally and in writing - the project outcomes and discuss these with specialists and non-specialists.	Communication
	7	Function effectively in international multidisciplinary teams and contribute from their expertise towards multidisciplinary or interdisciplinary issues.	Applying knowledge and understanding
	8	Recognise, understand and apply new concepts and approaches in the field of forest and nature conservation as they emerge.	Making judgements
	9	Demonstrate understanding of the moral and ethical dimensions of scientific research and its applications, and the importance of intellectual integrity.	Making judgements
	10	Critically reflect on their own performance and results, as well as on those of colleagues.	Making judgements
	11	Design a learning path, and develop personal competences, with a balance between domain knowledge and preparation for career opportunities.	Learning skills

MSc set-up

- 1st year courses + academic consultancy training

- 2nd year thesis + internship

- Flexible – free choice for specific profiling students

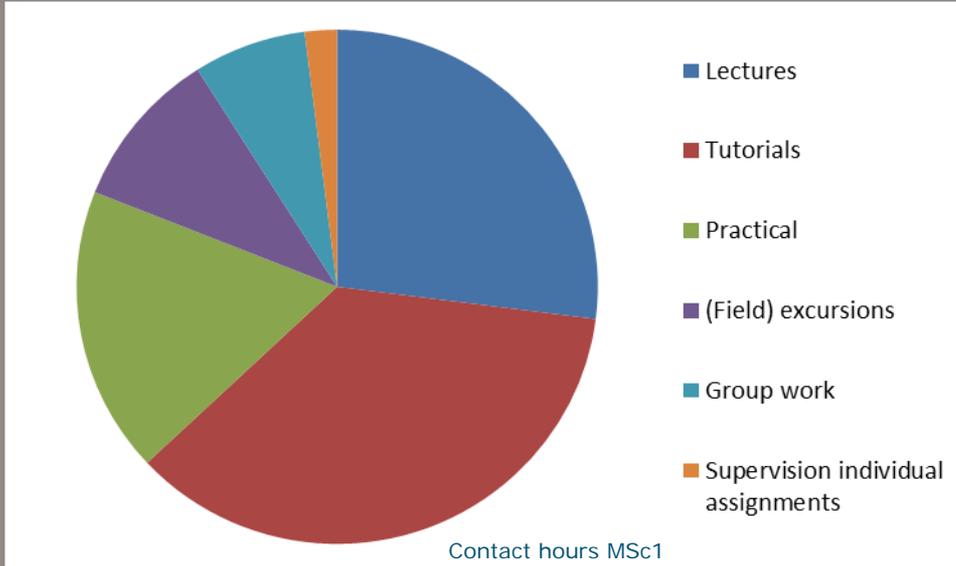| Year 1	Introductory and methodological courses (12 credits)	Specialization and Free Choice courses (36 credits)	Academic Master Cluster (12 credits)
Year 2	Thesis (36 credits)		Internship (24 credits)

Figure 1 - Schematic overview of the curriculum.

MSc Teaching –learning

- 1st year courses + academic consultancy training

- 2nd year thesis + internship

- Flexible – free choice

Lectures
Tutorials
Practical
(Field) excursions
Group work
Supervision individual assignments

Contact hours MSc1

Internationalisation

- Language BSc 1 -> BSc 3: 10%->70% UK

- Language MSc: 100% UK

- BSc students 2%-> 10% non-Dutch (Belgium, Germany)

- MSc students 1/3 international (>20 nationalities)

- Double degrees (European Forestry, Sustainable Development Diplomacy, EnvEuro)

- International topics

- International classroom

Assessment

1. Major issue accreditation in the Netherlands!

2. Matrix learning outcomes programme-courses

3. Matrix learning outcome course – assessment method

4. Standard thesis and internship protocol

5. Rubrics for Assessment

6. Assessment tables

7. 2nd examiner

8. peer review

Assessment

## 3. Matrix learning outcome course – assessment method

Example. Assessment strategy for the *Forest Resources and Sustainable Management Systems* course.

	Learning outcomes	Excursion Reports	Assign-ment	Exam
1	recall relevant numbers, facts, and background information on forest ecosystems and forest resources worldwide			x
2	explain how tree growth and wood anatomy translate to technological properties and hence wood quality			x
3	classify silvicultural systems and techniques for wood production			x
4	use harvest and regeneration models to calculate sustainable resource extraction			x
5	analyze the applicability of sustainable forest management techniques in forest systems worldwide		x	x
6	analyze data from international databases with respect to sustainable resource extraction and forest-area changes		x	x
7	correctly report and summarize facts and insights gained from excursions	X		x
8	critically judge the role of various ecological and social aspects relevant for sustainable forest resource management in different forest ecosystems worldwide		x	x
	Contribution to final mark [%]	**10**	**30**	**60**

Assessment

4. Standard **thesis** and internship protocol
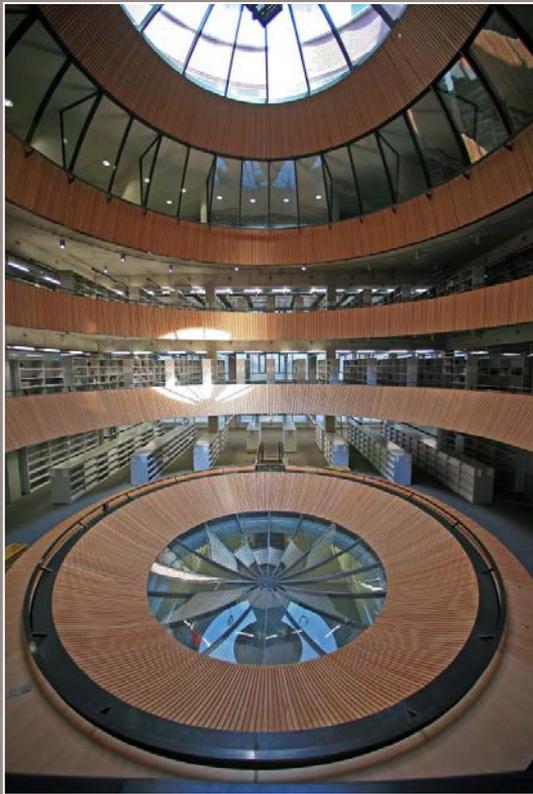
Assessment thesis Wageningen University

Fill out the single lined fields. Use a comma or a point as decimal sign, depending on the language chosen.

		Signature	
Name chair group			
Name student			
Registration number			
Study programme			
Specialisation			
Code thesis			
Short title thesis			
Date examination		Signature	
Supervisor chair group			
Supervisor outside chair group (if so)			
Second reviewer/examiner			

		grading mark 1-10	relative weight *
Research competence (30-60%) *			40%
1 Commitment and perseverance			
2 Initiative and creativity			
3 Independence			0.00
4 Efficiency in working with data			
5 Handling supervisor's comments and development of research skills			
6 Keeping to the time schedule			
Thesis report (30-60%) *			45%
1 Relevance research, clearness goals, delineation research			
2 Theoretical underpinning, use of literature			
3 Use of methods and data			0.00
4 Critical reflection on the research performed (discussion)			
5 Clarity of conclusions and recommendations			
6 Writing skills			
Colloquium (5%) *			10%
1 Graphical presentation			
2 Verbal presentation and defence			0.00
Examination (5%) *			5%
1 Defence of the thesis			
2 Knowledge of study domain			0.00
* Relative weights may be adjusted, provided	**TOTAL**		0.00
this is agreed upon and recorded in the			
thesis contract.	**FINAL GRADE**		0.0

Comment by supervisor

Comment by 2nd reviewer/examiner

Assessment

5. Rubrics for Assessment

Item	Mark for item					
	2-3	**4-5**	**6**	**7**	**8**	**9-10**
1. Research competence (30-60%) *						
1.1. Commitment and perseverance	Student is not motivated. Student escapes work and gives up regularly	Student has little motivation. Tends to be distracted easily. Has given up once or twice	Student is motivated at times, but often, sees the work as a compulsory task. Is distracted from thesis work now and then.	The student is motivated. Overcomes an occasional setback with help of the supervisor.	The student is motivated and/or overcomes an occasional setback on his own and considers the work as his "own" project.	The student is very motivated, goes at length to get the most out of the project. Takes complete control of his own project. Considers setbacks as an extra motivation.
1.2. Initiative and creativity	Student shows no initiative or new ideas at all.	Student picks up some initiatives and/or new ideas suggested by others (e.g. supervisor), but the selection is not motivated.	Student shows some initiative and/or together with the supervisor develops one or two new ideas on minor parts of the research.	Student initiates discussions on new ideas with supervisor and develops one or two own ideas on minor parts of the research.	Student has his own creative ideas on hypothesis formulation, design or data processing.	Innovative research methods and/or data-analysis methods developed. Possibly the scientific problem has been formulated by the student.
1.3. Independence	The student can only perform the project properly after repeated detailed instructions and with direct help from the supervisor.	The student needs frequent instructions and well-defined tasks from the supervisor and the supervisor needs careful checks to see if all tasks have been performed.	The supervisor is the main responsible for setting out the tasks, but the student is able to perform them mostly independently	Student selects and plans the tasks together with the supervisor and performs these tasks on his own	Student plans and performs tasks mostly independently, asks for help from the supervisor when needed.	Student plans and performs tasks independently and organizes his sources of help independently.
	No critical self-reflection at all.	No critical self-reflection at all.	Student is able to reflect on his functioning with the help of the supervisor only.	The student occasionally shows critical self-reflection.	Student actively performs critical self-reflection on some aspects of his functioning	Student actively performs critical self-reflection on various aspects of his own functioning and performance.
1.4. Efficiency in working with data Note: depending on the characteristics of the thesis work, not all three aspects (experimental work, data analysis and model development) may be relevant and some may be omitted	**Experimental work** Student is not able to setup and/or execute an experiment.	Student is able to execute detailed instructions to some extent, but errors are made often, invalidating (part of) the experiment.	Student is able to execute an experiment that has been designed by someone else (without critical assessment of sources of error and uncertainty).	Student is able to execute an experiment that has been designed by someone else. Takes sources of error and uncertainty into account in a qualitative sense.	Student is able to judge the setup of an existing experiment and to include modifications if needed. Takes into account sources of error and uncertainty quantitatively.	Student is able to setup or modify an experiment exactly tailored to answering the research questions. Quantitative consideration of sources of error and uncertainty. Execution of the experiment is flawless.
	Data analysis	Student is able to organize the data, but is not able to perform checks and/or simple analyses	Student is able to organize data and perform some simple checks; but the way the data are used does not clearly contribute to answering of the research questions and/or he is unable to analyze the data independently.	Student is able to organize the data, perform some basic checks and perform basic analyses that contribute to the research question	Student is able to organize the data, perform commonly used checks and perform some advanced analyses on the data	Student is able to organize the data, perform thorough checks and perform advanced and original analyses on the data.

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Assessment

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Challenges 2013-2015

- Success rates BSc programme (from 70% to >75%; a.o. Binding Study Advice)

- Employement after MSc: conservation + resource like ecosystem services, forest products etc. (advice specific courses to students)

- Study advice: Information – (self) assessment students– portfolio - coaching

- Decrease in investment nature -> new approaches (need for enterpreneurship; knowledge of economy, products, health; funding from state to provinces; cooperation farmers/nature; involvement public)

- Need more ICT + Communication (advice)

- Develop common integrated final course in MSc

- Keep Quality as TOP UNIVERSITY AND PROGRAMME

Thank you!

Questions?