

## MV0216 Soil and water processes in agroecosystems

### Grading criteria 2020

**The course can only be validated through completion of all three modules (i.e. at least grade 3 in all modules). Grades 3, 4 and 5 are determined by the final examination (written or oral) included in module 1 but covering all modules of the course. Modules 2 and 3 can only be passed or failed (i.e. grade 3 / U).**

Course modules

Code	Title	Credits
0001	Theory and calculation exercises	5.0
0002	Modelling exercises	5.0
0003	Mini-projects	5.0

### **Learning outcomes (LO)**

*The learning outcomes describe what the student should be able to do to achieve grade 3 (i.e. the 'pass' grade).*

On completion of the course students will be able to:

**LO-1:** describe the interactions between the physical processes and the factors that control flows and stores of energy, water and solutes in the soil-plant-atmosphere system (**Module 1**)

**LO-2:** build, apply and interpret the results of numerical models to simulate flows of energy, water and solutes in different types of soil, linked to different vegetation and climate (**Module 1 & 2**)

**LO-3:** apply this knowledge to analyse and solve practical problems concerning water flow and solute transport in relation to land use, soil and water management and environmental protection (**Module 3**)

*To achieve grades 4 and 5, the student should be able to achieve a higher level of understanding that is described in the table below, and which will be assessed in the final examination.*

## Criteria, assessment and grading of the Learning outcomes

Grade	LO-1	LO-2	LO-3
3	<b>Criteria</b>		
	<ul style="list-style-type: none"> <li>Describe the interactions between the physical processes and the factors that control flows and stores of energy, water and solutes in the soil-plant-atmosphere system</li> </ul>	<ul style="list-style-type: none"> <li>Build, apply and interpret the results of numerical models to simulate flows of energy, water and solutes in different types of soil, linked to different vegetation and climate</li> </ul>	<ul style="list-style-type: none"> <li>Apply this knowledge to analyse and solve practical problems concerning water flow and solute transport in relation to land use, soil and water management and environmental protection</li> </ul>
	<b>Assessment</b>		
	<ul style="list-style-type: none"> <li>Active participation to in-class calculations meeting (module 1, ass. 2)</li> <li>Completion of 3 online quizzes on application theory (module 1, ass. 3, 8 &amp; 13)</li> <li>50% right answers* (15p) to the final examination.</li> </ul>	<ul style="list-style-type: none"> <li>Active participation to all computer exercises (7 days, module 2, ass. 4-6, 9, 11, 14 &amp; 16)</li> <li>Completion of 4 online quizzes on computer exercises (module 2, ass. 7, 10, 12 &amp; 17)</li> </ul>	<ul style="list-style-type: none"> <li>Active participation to mini-projects activities (2.5 weeks, module 3, ass. 21-23): group work &amp; project development, group written report and oral presentation as well as discussion / cross-evaluation of projects' work <ul style="list-style-type: none"> <li>Clearly present the aims, methods and results of the study.</li> <li>Discuss the results critically including the interpretation, limitations and possible applications of the results to reality.</li> <li>Give clear and informative answers to relevant questions regarding the work</li> <li>Provide clear and relevant feedback to another project</li> </ul> </li> </ul>
4 and 5	<b>Criteria</b>		
	<ul style="list-style-type: none"> <li>Discuss and justify conclusions from problem solving (For independent questions and examples formulated in the final exam): <ul style="list-style-type: none"> <li>based on stringent and clearly explained reasoning (<b>grade 4</b>)</li> <li>showing a clear independent ability to apply the knowledge gained during the course (<b>grade 5</b>)</li> </ul> </li> </ul>		
	<b>Assessment</b>		
<ul style="list-style-type: none"> <li><b>Fulfill criteria for grade 3</b></li> <li>67% and 84% right answers* (20p and 25p) to the final examination for grade 4 and 5 respectively</li> </ul>			

\* Written (or oral) examination 30p in total: 18p will be dedicated to questions for grade 3; 6p for grade 4 and 6p for grade 5.

## **Appendix: compulsory components of the course**

*To achieve a grade of three in modules 1-3 requires participation in all compulsory components of the course and fulfillment of student assignments (Ass., please refer to the course schedule for assignment deadlines and to CANVAS for a detailed description of each assignment).*

### **Module 1:**

- Present yourself to the rest of the classroom (2-sept) Ass. 1
- In-class calculations meeting (3-sept) Ass. 2
- Complete Online Lecture quiz 1, 2 & 3 on CANVAS (8-sept, 16-sept, 24-sept) Ass. 3, 8 & 13
- Mini-workshop on Agroecosystems & climate change: preparation, introduction & discussion (28-sept, 5&6-Oct) Ass. 15, 19 & 20
- Final written examination Friday 30<sup>th</sup> October 2020 (9-12) Ass. 24

### **Module 2:**

- 6 STELLA exercises (+ Introduction to STELLA software) and one Excel exercise meetings (7 days from 10-sept to 1-Oct) Ass. 4-6, 9, 11, 14 & 16
- Complete Online STELLA quiz 1-4 on CANVAS (14-sept, 18-sept, 22-sept, 30-sept) Ass. 7, 10, 12 & 17

### **Module 3:**

- Mini-project (group work): group work (8-23-Oct), written report on time (20-Oct), oral presentation & opposition to another project (23-Oct) Ass. 21-23