



UNIVERSITETET I BERGEN  
*Institutt for geografi*

Emnerapport våren 2013:

# **GEO-SD660 Natural Resources Management**

Innhold:

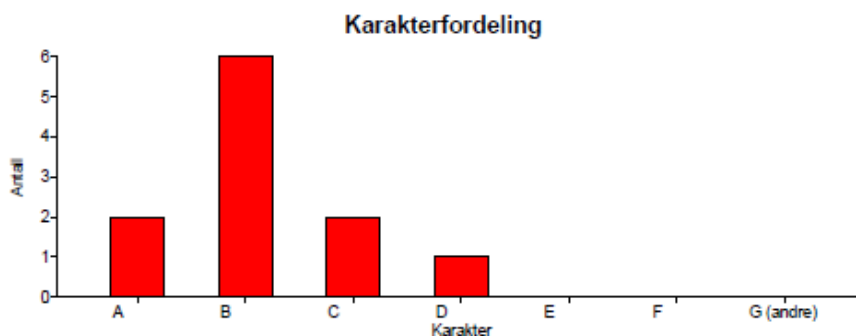
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Emnerapporten er gjennomgått i  
Undervisningsutvalget ved Institutt for geografi

Dato: 08.09.2013

<b>1. Informasjon om emnet</b>	
Emne	GEO-SD660 Natural Resources Management
Emneansvar	Erling Moxnes
Undervisningssemester	Vår
Vurderingsform	Assessment of student performance has four components. First, 10% of the grade is based on participation in discussions. Second, 35% of the grade is based on selected answers in Applications sections. Third, 55% is based on a three-hour Internet exam at the end of the course. Questions are varied randomly among students to discourage collaboration. Fourth, students may be selected for an oral examination using Skype, where they must present a valid photo identification card. To pass the course, selected students must receive a passing grade on the oral examination.
Undervisningsform	Internet based interactive distance learning with on-line tasks and immediate answers, videos, analogies, animations, simulators, simulation models, games, and discussions.
Obligatoriske arbeidskrav	Students must answer at least 50% of the Learning-by-doing questions correctly to proceed from one chapter to the next, and ultimately to the exam. There is no limitation on number of trials.
<b>2. Statistikk</b>	
Eksamensmeldt	34
Bestått	11
Stryk	0
Avbrutt	0
Ikke møtt	0
Manglende oblig	0
Trekk før eksamen	1
Annen	0
Gjennomsnittskarakter	B
Karakterfordeling	

Ordning	Antall studenter	A	B	C	D	E	F	Andre
L. Mappeevaluering	34	2	6	2	1	0	0	0
	%	18	55	18	9	0	0	0
	%	18	55	18	9	0	0	0



### 3. Egneevaluering

*Vurdering av undervisningsopplegget i forhold til mål og resultater (emneansvarlig)*

The purpose with the course was to contribute to deeper intuitive understanding of problems related to natural resources management for students all over the world, hence the distance-learning format. A secondary purpose was to limit resource use once the course is established while giving the students an engaging and efficient learning experience, hence the interactive design with questions and programmed answers, video introductions and debriefings, animations, simulators, simulation models and games. After some tedious technical problems in the first few chapters (server settings in combination with the working of our programs), the course worked very well. Only 32% of those who signed up for and were offered a place in the course did take the exam and did pass the course. This number is likely to increase in the future. First, a quite large number of those that were offered a place in the course were Norwegian teachers. Half of these never signed on to start the course. Among those that did sign on to the course material at least once, 38% took the exam. Secondly, the early technical problems discouraged some students from going on with the course, only 4 of these went beyond chapter 2 (out of 6 chapters). Since this problem is solved, it will not be a problem in the future. Thirdly, several students reported a high workload besides the course as a reason to give up. This is not likely to change in future courses.

The final exam, which was unproctored, open book and open internet, worked very well.

Randomization of both question sequences and parameter values prevented cheating. Analysing the answers we found that there was an almost perfect correlation between the results obtained in multiple choice / numerical questions and written answers.

### 4. Studentevaluering:

Ten of the eleven that took the exam evaluated the course, 6 of the 18 that started but did not finish gave full evaluations. Most students reported that the course delivered what they expected. Among useful comments were: Too much focus on fish resources, too little non-renewable resources, some sections should be shorter (students cannot stop in the middle of a section), it should be easier to get an overview over the course and to identify material for repetitions, plus some minor technical problems. The discussions in MySpace did not work very well, with long response times and no chats.

Among those that took the exam the average score over 16 questions was 4.6 on a scale from 1 to 5. 61% of the answers were 5s, 36% 4s, 3% 3s, 0% 2s, and 0% 0s. Students tended to disagree with a statement about "too complicated" (score 2.2), they agreed that the workload corresponded to 10 study points (score 3.2), and they neither agreed or disagreed that they missed face to face contact with instructors (score 3.1) or with other students (score 2.9).

Among those that started but did not finish the course the average score over 16 questions was 4.0 on a scale from 1 to 5. 32% of the answers were 5s, 39% 4s, 22% 3s, 5% 2s, and 1% 0s. Compared to those that took the exam the scores are somewhat lower. Compared to those who took the exam, the latter group did not give significantly different answers about complexity and face to face contact.

Those that took the exam gave an average score of 4.6 to the question about recommending the course to other students while those who did not finish gave an average score of 4.2.

## 5. Oppfølging

*Oppfølging av/kommentarer til tidligere evalueringer. Hvordan rapporten følges opp, evt. tiltak eller endringer som er gjort/planlegges gjennomført på bakgrunn av emnerapporten*

Since this was the first time the class was given, there are several things to improve. We will introduce more non-renewable resource problems and take out some of the least interesting material. We will shorten the longest sections in the first two chapters, in later chapters they are already shorter. We will give better overview of the course, particularly for the purpose of repeating material. We will remove the discussion forum in MySpace and introduce a chat option in the interactive course material. Still all questions must be answered to sit for the exam, however, students will not be graded on their answers to questions in the application sections. This is because when students work together, immediate answers to questions means that answers are revealed to all those working together. Rather, we will introduce a midterm exam of the same type as the final exam. When analysing student answers we found that those who worked together gave much better answers than expected in application sections. This effect was not seen in the final exam, which demonstrates that the format of the final exam makes cheating very difficult. The oral examination of randomly selected students by Skype after the final exam also gave the impression that the final exam did not allow for cheating (the oral exam gave better results than the written one). With these improvements, we feel confident that this course can be offered to large numbers of students worldwide. A final thing to test is the capacity of our server.