



UNIVERSITY  
OF SKÖVDE

School of Bioscience

## WRITTEN EXAMINATION

Course: Sustainable Development G1N

Examination: Written exam

Course code: BV112G

Credits for written examination: 2 hp

Date: 2024-03-01

Examination time: 14:15-18:30

Examination responsible: Jenny Lennartsson

Teachers concerned: Sonja Leidenberger

Aid at the exam/appendices: None

Other

- Instructions
- Take a new sheet of paper for each teacher.
  - Take a new sheet of paper when starting a new question.
  - Write only on one side of the paper.
  - Write your name and personal ID No. on all pages you hand in.
  - Use page numbering.
  - Don't use a red pen.
  - Mark answered questions with a cross on the cover sheet.

Grade points: The exam will be graded A-F. To achieve the grade E, you must have at least 50% of the points for each part of the exam. In addition to the requirements for E, gives a total score of 60% = D, 70% = C, 80% = B and 90% = A

**Examination results should be made public within 18 working days**

*Good luck!*

Total number of pages: 5

## Written exam: Sustainable Development (BV112G)

Date of exam: 2024-03-01

### Welcome!

This exam covers the course objectives listed below. Each objective is tested by 4 - 5 questions. The total amount of points for each section is 10 points (p). There are four sections. Therefore, the total amount of points on the exam is 40 p. To pass the exam the student needs to accumulate at least 50% of the total points in each section.

For higher grades the student must fulfill the requirements for grade E and then collect 60-90% of the total score of the exam according to the following: D= 24 p (60%), C= 28 p (70%), B= 32 p (80%) and A= 36 p (90%)

### Course objectives

After the course, the student is expected to have reached the following goals and acquired skills:

- *Course Objective 2:* After completed course the student should be able to discuss how economic, social, and ecological factors affect populations, ecosystems, and the sustainable management of natural resources,
- *Course Objective 3:* After completed course the student should be able to describe the main national and international sustainable development goals, and how governments, corporations, and NGOs at local, regional and global levels pursue the fulfilment of these goals,
- *Course Objective 4:* After completed course the student should be able to use knowledge about biological resources and ecological factors in discussions about natural resource management and environmental issues,
- *Course Objective 5:* After completed course the student should be able to account for the principles of ecological footprints and life cycle analysis, and to discuss difficulties with these.

*Note:* you choose if you want to answer in English or Swedish

*Best of luck!*

## Course objective 2

After completed course the student should be able to discuss how economic, social, and ecological factors affect populations, ecosystems, and the sustainable management of natural resources. (max 10 p, E: 5 p)

1. Explain the concept of sustainable development according to the United Nations definition. (2 p)
  
2. The use of artificial fertilizers in agriculture and the combustion of fossil fuels and other organic materials are two examples of how human activities are influencing the nitrogen cycle. The end result of changing natural processes may be detrimental to the environment and consequently also to human societies. (4 p in total)
  - a. How does the use of artificial fertilizers affect the nitrogen cycle and what environmental problems are associated with this? (2 p)
  
  - b. How does the combustion of fossil fuels and other organic material affect the nitrogen cycle and what environmental problems are associated with this? (2 p)
  
3. What is a farming system where only one type of crop is grown called? (1 p)
  
4. Which of the following statements are true and false, respectively? (3 p)
  - a) Economic growth is negatively correlated with environmental sustainability.
  
  - b) Education of women is associated with reduced birth rates.
  
  - c) To enable sustainable development, society needs to decrease the use of stock resources and at the same time increase the use of flow resources.

### Course objective 3

After completed course the student should be able to describe the main national and international sustainable development goals, and how governments, corporations, and NGOs at local, regional and global levels pursue the fulfilment of these goals. (max 10 p, E: 5 p)

5. There are two critical differences between Agenda 2030 and the Swedish Environmental Objectives (SEO). One is that Agenda 2030 are global goals while the SEO are national goals. What is the other key difference between Agenda 2030 and SEO? (2 p)
  
6. The Swedish Environmental Objectives (SEO) are the basis of the national Swedish environmental policy. (3 p)
  - a. Describe the general structure of SEO in terms of different levels of goals. (2 p)
  - b. Explain how the responsibility of different SEO goals is organized. (1 p)
  
7. What is the overall aim of the Swedish environmental legislation? (1 p)
  
8. Assign the following sustainability goals to either Agenda 2030 or Swedish environmental objectives. Use the denotations 2030 and SEO. (4 p)
  - a) Sustainable Cities and Communities (0.5p)
  - b) Thriving Wetlands (0.5p)
  - c) Natural Acidification Only (0.5p)
  - d) Reduced Inequalities (0.5p)
  - e) Flourishing Lakes and Streams (0.5p)
  - f) Sustainable Forests (0.5p)
  - g) Good Health and Well-being (0.5p)
  - h) Life Below Water (0.5p)

#### Course objective 4

After completed course the student should be able to use knowledge about biological resources and ecological factors in discussions about natural resource management and environmental issues. (max 10 p, E: 5 p)

9. There are three kinds of biological differences or levels of variation that together constitute biological diversity (biodiversity). Which are they? (3 p)
  
10. Ecosystem services are important for humanity in many different ways. Their production is also dependent on functioning ecosystems. There are two reasons why biodiversity is important for long-term provision of ecosystem services. Which are these two reasons and why are they important? (2 p)
  
11. Which of the following options are threats to biodiversity? (1 p)
  - a) Native species
  - b) Habitat loss
  - c) Climate changes
  - d) Overexploitation
  
12. What is the eco-label for forests? (1 p)
  - a) Fairtrade
  - b) KRAV
  - c) MSC
  - d) FSC
  
13. Which of the following statements are true and false, respectively? (3 p)
  - a) Without the greenhouse effect life on Earth is impossible.
  - b) Fragmentation (of habitat) typically causes genetic diversity to increase.
  - c) Loss of biodiversity is a planetary boundary that has already been exceeded.

## Course objective 5

After completed course the student should be able to account for the principles of ecological footprints and life cycle analysis, and to discuss difficulties with these. (max 10 p, E: 5 p)

14. Explain what is meant by the Anthropocene. (2 p)
  
15. What is Earth Overshoot Day? (1 p)
  
16. Is it true or false that Swedish people consume resources corresponding to eight times the amount of what the earth can sustain and produce? (1 p)
  
17. What is the purpose of Life Cycle Assessment? (2 p)
  - a) From a producer's perspective? (1 p)
  - b) From a consumer perspective? (1 p)
  
18. Materials can be used in either a linear way (linear material flow) or a circular way (circular material flow). (4 p)
  - a) Explain the main difference between linear- and circular material flows. (2 p)
  - b) How do these two different ways to use materials affect humans and the environment? (2 p)