

Name_____

Vorname_____

Matrikel-Nr.:_____

Studiengang:_____

☐ Regulärer Versuch

☐ 1. Whlg.

☐ 2. Whlg.

Universität Rostock
Wirtschafts- und Sozialwissenschaftliche Fakultät
Lehrstuhl für VWL – Außenwirtschaft –

Klausur
Introduction to Environmental and Resource Economics
(BSc Wirtschaftswissenschaften)

WiSe 2023/24, 14. Februar 2024

- Beantworten Sie **zwei der drei** gestellten! Unterschreiben Sie die Klausur auf der letzten Seite. Alle Aufgaben sind gleich gewichtet.
- Erlaubte Hilfsmittel: keine.
- *Please answer **two out of three** questions! All questions are equally weighted.*
- *Additional materials allowed: none.*

Bearbeitungszeit: 90 Minuten

Time limit: 90 minutes

Two (and only two) out of three questions! While writing, please explain the symbols you use. Please also state the assumptions you make concerning the shape of the functions.

1. Exhaustible resources

What is the Hotelling rule and what is the economic intuition behind it?

Draw a four-quadrants-diagram of a market in which competitive resource owners extract an exhaustible resource at constant marginal extraction cost (which does not depend on the stock). Demand is downward-sloping and has a choke price at which demand becomes zero. Explain the diagram briefly.

Show what is going to happen if the marginal extraction cost is reduced (e.g. by the introduction of better technologies).

2. Environmental regulation and monopoly

Draw a market diagram of a polluting monopolistic firm with a linear demand function and a marginal environmental damage that is increasing in output. Explain the diagram briefly and show that the internalisation of the environmental externality may lead to a welfare loss and use this result to explain the theory of the second best.

Hint: Assume that the marginal environmental damage is not very large.

3. Efficiency and environmental regulation

What do economists mean by efficiency? Look at a situation in which n firms have different abatement cost functions and derive the condition of efficient abatement algebraically (*Lagrangean approach*). Finally draw a diagram with two firms having different marginal abatement cost functions, but being regulated at the same level of abatement. Show that such a situation is inefficient. Explain what you are doing.