

# Real Analysis and Multivariable Calculus

In Cooperation with the GRADE Center GSEFM

## Objective

The GRADE Center GSEFM opens its „pre-semester courses“, held by advanced PhD candidates, to all PhD candidates, registered at GRADE. These courses cover different topics.

## Description

1. Limits and Open Sets
  - a. Sequences of Real Numbers
  - b. Open, Closed and Compact Sets
2. Multivariable Functions
  - a. Functions between Euclidean Spaces
  - b. Special Kinds of Functions (Linear, Quadratic, Polynomials)
  - c. Continuous Functions
3. Multivariable Calculus
  - a. The Total Derivative
  - b. The Chain Rule
  - c. Directional Derivatives and Gradients
4. Implicit Functions
  - a. Implicit Function Theorem
  - b. System of Implicit Functions

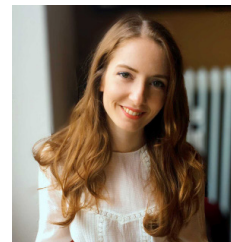
## Conditions

Students are expected to have a solid undergraduate background in mathematics. Students missing some of this background are expected to have worked through the following reference prior to the beginning of the course:

*Chiang, A.C. and K. Wainwright (2005): Fundamental Methods of Mathematical Economics, Mc Graw-Hill Irwin.*

On-site sessions will take place if the epidemiological situation and the prevention guidelines issued by Goethe University make it possible. Otherwise, they will be replaced by online sessions. Information on the subject will be shared by email at least one week before the beginning of the program.

## Trainer



**Tajda Spital**

GSEFM, Goethe University

Tajda Spital is a doctoral candidate in Economics at the Graduate School of Economics, Finance, and Management (GSEFM), and a research assistant at the Chair for Macroeconomics and Finance.

She holds a Bachelor's degree in International Economics from University of Ljubljana, a Master's degree in Economics from Pompeu Fabra University of Barcelona, and a Master's degree in International Relations from London School of Economics. She has worked on economic policy and research issues at the European Commission, the European Central Bank, and the European Bank for Reconstruction and Development.

## Organizational Information

Language	English
Target group	Doctoral Candidates at all stages from all faculties
Date	Thursday-Friday, 1-2 October 2020, 9:00 – 15:00 Monday-Tuesday, 5-6 October 2020, 9:00 – 15:00
Registration	<a href="#">For registration click here</a>