



Deutscher Akademischer Austauschdienst
German Academic Exchange Service



UNIVERSITÄT GREIFSWALD
Wissen lockt. Seit 1456



CERTIFICATE OF PARTICIPATION

This is to certify that

Iryna Bilous

(ID 57652136-07)

successfully completed the course

"Data Analysis using Python and GIS"

in Summer Semester 2023/2024

and is awarded **4 ECTS** with an overall grade of 70.

The participation included weekly assignments.

This course has been offered by University of Greifswald and Odessa State Environmental University in the context of the project OPENSACES - Offering non-Proprietary Education for aNalysing SPAtial data in Computer and Environmental Sciences.

<https://phil.uni-greifswald.de/ifzo/openspaces/>

Background: ESA

Prof. Dr. Sebastian van der Linden
Institute for Geography and Geology
University of Greifswald

Assoc. Prof. Svitlana Kuznichenko
Course Instructor
Odessa National Mechnikov University

Greifswald, 20.08.2024



Iryna Bilous

has been awarded four (4) credits according to the
European Credit Transfer and Accumulation System (ECTS)
with an overall grade of 70 (D)

Course “Data Analysis using Python and GIS” included:

Lectures (L):

Module 1 - Fundamentals of Data Analytics with Python libraries: NumPy, Pandas, Matplotlib

- L1: The basic stages of the Data Analysis Process
- L2: Installing and configuring the Python environment
- L3: Fundamentals of Pandas and Matplotlib libraries
- L4: Data visualization using the Cartopy interface
- L5: Analysis and visualization of NetCDF format data. Basemap tool

Module 2 - Python programming in QGIS

- L6: Using the QGIS Python console for interactive control
- L7: Analyzing and editing vector data with the PyQGIS API
- L8: Analyzing and editing vector data with the GeoPandas library
- L9: Mapping and Data Visualization with Python
- L10: Writing standalone Python scripts

Practical:

Assignments (Projects) & Defence:

- P1: Data analysis using the Pandas library
- P2: Data analysis and visualization using Matplotlib and Cartopy libraries
- P3: Analysis and visualization of Copernicus climate data using the CDS API
- P4: Automating the analysis of spatial data using PyQGIS API
- P5: Automating the analysis of spatial data using GeoPandas library