

This certificate is awarded to

NAME Sofía Nieva

FROM Universidad de Buenos Aires

for successful participation and receiving a passing grade in the course

Data Science and Machine Learning with Python

held in summer term 2021 at Dortmund University of Applied Sciences and Arts as part of the study program International Business Management.

The course included self-study of eLearning material in preparation for the course, weekly online-lectures and exercises in small break-out groups as well as self-managed intercultural virtual team work in different student assignments and case studies throughout the semester.

Selection of topics covered in the course

- Introduction to Python and Jupyter Notebook
- NumPy, pandas, matplotlib and scikit-learn
- Data cleaning, grouping and joining
- Principles of data visualization
- Data Science reports
- Basics of image processing and text data analysis
- Ridge regression and lasso regression
- Logistic regression
- Linear and kernelized support vector machines
- Decision trees, random forest and gradient boosting
- Neural networks
- Principal component analysis
- k-means, hierarchical clustering and DBSCAN
- Feature engineering
- Model evaluation and improvement



Prof. Dr. Stephan Weyers, Fachhochschule Dortmund

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TRANSCRIPT OF RECORDS

Program at FH Dortmund: International Business Management

Name of student: Sofía Nieva
Date of birth: 7/3/1995
Institution: Universidad de Buenos Aires
Study program: Computer Sciences

Module Examination	Achievement in Percent	ECTS
Data Science and Machine Learning in Python	99	10

Grading System

	Excellent			Good		Satisfactory			Pass	
Percent range	95-100	90-94,9	85-89,9	80-84,9	75-79,9	70-74,9	65-69,9	60-64,9	55-59,9	50-54,9
Letter range	A+, A	A-	B+	B	B-	C+	C	C-	D+	D

Credit Point System

ECTS: European Credit Transfer System: ECTS credits represent the workload and defined learning outcomes (what the individual knows understands and is able to do) of a given course or programme. 60 credits are the equivalent of a full year of study or work. In a standard academic year, 60 credits would be usually broken down into several smaller components. Usually, workload ranges from 1,500 to 1,800 hours for an academic year, which means that one credit corresponds to 25 to 30 hours of work. Workload is an estimation of the time the individual typically needs to complete all learning activities such as lectures, seminars, projects, practical work, work placements and individual study required to achieve the defined learning outcomes in formal learning environments. It should be recognised that this represents the typical workload and that for individual students the actual time to achieve the learning outcomes will vary. See http://ec.europa.eu/education/ects/ects_en.htm for further information on the ECTS system.

Signed for and on behalf of
Fachhochschule Dortmund
Prof. Dr. Stephan Weyers

Fachhochschule
Dortmund
University of Applied Sciences and Arts
Fachbereich Wirtschaft
Emil-Figge-Str. 44
44227 Dortmund



(Witness)

Place and date: Dortmund, August 2nd, 2021