**Applied Data Science in FinTech**

**1. COURSE SPECIFICATIONS**

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| **COURSE TITLE** | Applied Data Science in Fintech |
| **TEACHING LANGUAGE** | English |
| **COURSE SUPERVISOR** | Dr. Mario Gellrich  Zurich University of Applied Sciences, Switzerland |
| **OFFICE HOURS** | On appointment (at school or by MS Teams) |
| **CLASSROOM(S)** | See course portal |
| **COURSE HOURS** | 2 x 6 hours lectures and exercises |
| **FACILITATORS** |  |

Data science is an interdisciplinary field that uses scientifically sound methods, processes, and algorithms for extracting insights from both structured and unstructured data. FinTech follow technological advancement and the development of state-of-the-art data science methods with keen interest. Examples of such data science technologies are smart contracts based on the blockchain technology and machine learning methods for the assessment of credit risks and the optimization of financial investments.

The course takes place on two consecutive days. On the first day, the students will learn how to use data science methods to develop a machine learning model for the assessment of credit risks. On the second day, students will learn how to develop an automated trading bot for cryptocurrencies. The exercises will integrate the most important aspects of data science from problem framing to the deployment of the models and algorithms.

**2. LEARNING OUTCOMES**

On successful completion of the course, the students shall be able to:

* Frame the problems related to the use cases (credit risk, automatic trading)
* Work with the R and Python scientific programming languages
* Read and write data to and from R and Python and prepare data for modeling
* Conduct exploratory data analysis (EDA)
* Build models and assess the model performance (use case credit risk)
* Write functions for the trading bot (use case automatic trading)
* Run the models and functions

**3. EVALUATION**

**Assessment activities:**

Participants will attend lectures (25%) and perform practical lab exercises with the R and Python programming languages (75%). Hence, participants will have a good mixture of theory and hands-on exercises.

**Evaluation assignments and criteria:**

Student evaluations will be accessed around the following deliverables:

* 50% implementation of two use cases (credit risk modelling; cryptocurrency trading bot)
* 50% presentation of the results

**4. LEARNING ACTIVITIES**

**Organization, methods and pedagogy:**

* Workshops
* Individual and group exercises
* Presentations

**Bibliography:**

Materials will be updated in real-time on the course portal at http://Baisummer.com