

# Machine Learning and Data Analytics in Finance and Accounting

Munich, Germany  
August 3 - 21, 2020  
[www.mda-misu.de](http://www.mda-misu.de)



## **Important Update-April 27, 2020:**

Ludwig Maximilian University of Munich (LMU) will be hosting this course remotely this summer.

The online course will contain all relevant elements of the regular course including interactive live lectures, online group work and assignments and examination procedures.

The course remains open for registration until 15 July 2020.



# Munich 2020

Sessions: August 3 – 21

Session will take place at: will be announced

## Patronage



### **Prof. Dr. Thorsten Sellhorn**

Institute for Accounting, Auditing and Analysis  
Munich School of Management

## Lecturer



### **Dr. Gereon Hillert**

Professional expert and former Research Assistant  
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|             |                               |  |                             |
|-------------|-------------------------------|--|-----------------------------|
| <b>Date</b> |                               |  |                             |
| Sat, 1      |                               |  |                             |
| Sun, 2      |                               |  |                             |
| <b>Date</b> | <b>Block</b>                  | <b>10.00 a.m. – 14.00 p.m.</b>   | <b>Readings</b>             |
| Mon, 3      | <b>Intro</b>                  | <p>Introduction to machine learning and its application in finance and accounting (AW)</p> <p><b>Meeting point:</b> virtual classroom</p> <p>Case Introduction</p> | MG* - Chapter 1 (p. 1 – 4)  |
| <b>Date</b> | <b>Block</b>                  | <b>9.00 a.m. – 13.30 p.m.</b>  | <b>Readings</b>             |
| Tue, 4      | <b>Introduction to Python</b> | <p>Getting ready</p> <p>Python Basics for Data Science (AW)</p> <p>Case – Part 1</p>   | MG* - Chapter 1 (p. 5 – 11) |
| <b>Date</b> | <b>Block</b>                  | <b>9.00 a.m. – 13.30 p.m.</b>  | <b>Readings</b>             |
| Wed, 5      | <b>Introduction to Python</b> | <p>Importing, cleaning and merging data (AW)</p> <p>Case – Part 2</p>  |                             |

| <b>Date</b> | <b>Block</b>  | <b>9.00 a.m. – 13.30 p.m.</b>   | <b>Readings</b>                      |
|-------------|---|---|--------------------------------------|
| Thu, 6      | <b>Introduction to Python</b>   | Natural language processing - Textual Analysis (AW)<br><br>Case – Part 3                    | MG* -<br>Chapter 7<br>(p. 323 – 325) |
| Fri, 7      | <b>Machine Learning</b>   | Unsupervised machine learning (AW)<br><br>Case - Part 4                                     | MG* -<br>Chapter 2<br>(p. 25– 27)    |
| Sat, 8      |   |   |                                      |
| Sun, 9      |   |   |                                      |
| <b>Date</b> | <b>Block</b>  | <b>9.00 a.m. – 13.30 p.m.</b>   | <b>Readings</b>                      |
| Mon, 10     | <b>Machine Learning</b>   | Supervised machine learning I - Basics (GH)   | MG* -<br>Chapter 2<br>(p. 25– 27)    |
| Tue, 11     | <b>Machine Learning</b>   | Supervised machine learning II (GH) - Application<br><br>Case - Part 5<br><br>Wrap-up & Q&A | MG* -<br>Chapter 3<br>(p. 131-134)   |
| Wed, 12     | <b>Machine Learning</b>   | Supervised machine learning II (GH) - Model evaluation<br><br>Case - Part 6                 | MG* -<br>Chapter 5<br>(p. 251-252)   |
| <b>Date</b> | <b>Block</b>  | <b>15.00 p.m. – 18.00 p.m.</b>  | <b>Readings</b>                      |
| Wed, 12     | <b>Recap and team event</b>   | Recap and bavarian culture (Starting 15:00 p.m.)  |                                      |
| Thu, 13     | <b>No class. Time to prepare for exam and student’s presentation.</b> |   |                                      |
| Fri, 14     | <b>No class. Time to prepare for exam and student’s presentation.</b> |   |                                      |
| Sat, 15     |   |   |                                      |
| Sun, 16     |   |   |                                      |

| <b>Date</b> | <b>Block</b>                               | <b>9.00 a.m. – 13.30 p.m.</b>   | <b>Readings</b> |
|-------------|--|---|-----------------|
| Mon, 17     | <b>Data Analytics</b>                      | Data Visualization<br>Data description<br>Statistical analysis<br><br>Case - Part 7 |                 |
| Tue, 18     | <b>Wrap-up 2 &amp; Q&amp;A</b>             | Summary of overall content (GH)   |                 |
| <b>Date</b> | <b>Block</b>                               | <b>14.00 a.m. – 17.15 p.m.</b>  | <b>Readings</b> |
| Tue, 18     | <b>Presentations</b>                       | Student's Presentations (GH)  |                 |
| Wed, 19     | <b>No class. Time to prepare for exam.</b> |   |                 |
| <b>Date</b> | <b>Block</b>                               | <b>9.00 a.m. – 10.00 a.m.</b>   | <b>Readings</b> |
| Thu, 20     | <b>Exam</b>                                | GH/AW   |                 |
| Fri, 21     |  |   |                 |
| Sat, 22     |  |   |                 |

**Note that the agenda is preliminary and may be subject to change.**

**References:**

**\* Andreas C. Müller, Sarah Guido: Introduction to Machine Learning with Python: A Guide for Data Scientists, 1st Edition - MG (Main Textbook)**

Bird, Steven; Klein, Ewan; Loper, Edward: Natural Language Processing with Python, First edition, 2009

Géron, Aurélien: Hands-On Machine Learning with Scikit-Learn and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems 1st Edition