Why you should learn about Data Science @WU?

Prof. Axel Polleres, Dr. Sabrina Kirrane

• Find these slides at: http://polleres.net/presentations/
Why you should learn about Data Science @WU?

Data Scientist: The Sexiest Job of the 21st Century

by Thomas H. Davenport and D.J. Patil

From the October 2012 issue


The Kinds of Data Scientist

by Yael Garten

November 06, 2018


"50 Prozent glauben, dass Technologieriesen wie Google mit ihrer Big-Data-Kompetenz künftig in direkte Konkurrenz zu den angestammten Consultants treten."
Digitalisation and Data-driven Business are everywhere:

Big Data as core business: **Google** does not hire anybody without IT-knowledge

**Apple**: from hardware company to data company

**Red Bull**: Marketing increasingly requires Data Science

**BMW**: Supply-Chain, Intelligente Produktion, in-car-Technologie (car-to-car communication,...), etc.

**UN**: One of the biggest providers of Open Data, Disaster & Crisis Management, etc.
Did you know that Netflix creates their contents from Data about their customers?

Other known examples of data-driven businesses:

Last, but not least... AI is data-hungry

- AI depends on lots of data
- Understand scalability issues!
- Learn how to curate and feed data into Machine-Learning
- Understand risks and biases!
Die Schlüsselposition „Data Scientist“ ist für Unternehmen da, wo innovative neue Lösungen entwickelt werden müssen, abseits des „Tagesgeschäfts“.

Das neue Berufsbild „Data Scientist“


Data Science is becoming at all levels, incl. the Executive level!

- Data Stewards,
- Chief Data Officer,
- Chief Digital Officer
### Data Scientists' Skills

<table>
<thead>
<tr>
<th>Technical Skills</th>
<th>&quot;Traditional&quot; Data Analyst</th>
<th>Data Scientist</th>
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<tbody>
<tr>
<td>Analytical Thinking</td>
<td>well-founded math and <strong>statistics</strong> skills</td>
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<tr>
<td>DBMS/Data Modelling</td>
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<tr>
<td>Applying tools (e.g. market analytics tools)</td>
<td>Data Mining</td>
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<tr>
<td>Apply <strong>proven</strong> analytical processes</td>
<td>Visualisation, <strong>exploratory</strong> data analytics</td>
<td></td>
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<td>Programming skills not necessary, but an advantage</td>
<td>Development of algorithms (<strong>front-to-end-solutions</strong>) <strong>Methodical abstraction</strong> of algorithms</td>
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<tr>
<th>Organisational/managerial skills</th>
<th>&quot;Data Science Teams&quot;</th>
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<tbody>
<tr>
<td>Detailed domain knowledge</td>
<td><strong>Domain-specific background knowledge</strong></td>
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<tr>
<td>Project management</td>
<td><strong>creativity</strong>, ideas: &quot;find the needle in the hay stack&quot;</td>
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<tr>
<td>Communicative skills</td>
<td><strong>communicative skills AND team spirit</strong> „<strong>Data Science Teams</strong>“</td>
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adapted/extended from: "Assessing the demand for Big Data and Analytics Skills 2013 – 2020" (Forfás, 2014)
Data Science SBWL:  
https://www.wu.ac.at/dpkm/teaching/sbwl-data-science/

- **Interdisciplinary! International!**
  - 6 Institutes:
    - Data, Process and Knowledge Management,
    - Production Management,
    - New Media,
    - Statistics & Mathematics,
    - Marketing,
    - Business Law
  - all courses taught in **English**

- 5 Courses (PI 2.0) :
  - **SBWL DS 1**: Data Processing 1
  - **SBWL DS 2**: Data Analytics
  - **SBWL DS 3**: Data Processing 2: Scalable data processing, Legal & Ethical foundations of data science, Open Data
  - **SBWL DS 4**: Applications of Data Science  
    (Production Management, Supply Chain, Marketing, Process Management, Computational Social Sciences)
  - **SBWL DS 5**: Data Science Lab, in collaboration with real data providers!
**Data Science SBWL: Organisation**  
[https://www.wu.ac.at/dpkm/teaching/sbwl-data-science/](https://www.wu.ac.at/dpkm/teaching/sbwl-data-science/)

- **Schedule:**

<table>
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<th>SS 2024</th>
<th>WS 2024/2025</th>
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<tr>
<td>• Data Processing 1</td>
<td>• Applications of Data Science</td>
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<td>• Data Processing 2</td>
<td>• Data Science Lab</td>
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<td>• Data Analytics</td>
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- Next cohort:

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<th>WS 2024/2025</th>
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1. You can prepare!
   - "Algorithmic Thinking and Programming" course ... recommended, but not strictly needed
   - DataCamp python & R tutorials to get a glimpse (access will be provided through the courses)

2. We'll provide support!
   - Our tutors provide help, particularly for students new to coding and programming (New: we'll provide separate "bridging tutorials" to support you in the first assignments and get all "up to speed")
   - Group works emphasizing on mixed skills and mutual support!
   - Get help through our course online forums (we commit to response-within-a-day (except weekends ;-)))

High reward, high impact!
You'll be trained up to solving real use case with real partners, e.g.:
**Data Science Lab – news!**

**WU Innovative Teaching Award 2023**

Schwerpunkt „Gemeinsam Lehren: Innovative Kooperationen und Partnernchaften“

*High reward, high impact!* You'll be trained up to solving real use case with real partners, e.g.:
Data Science SBWL: Organisation
https://www.wu.ac.at/dpkm/teaching/sbwldata-science/

- **Requirements:**
  - Willingness & Fun to work “hands-on” with data!
  - Learn the most popular Data Science tools
  - Willingness to work in teams and interdisciplinary!
  - Willingness to solve (data) problems!

- **Qualification to enter the SBWL:**
  Register for the entry test/tutorials via LPIS!!!

Factors taken into account:
- best grades transcripts/Avg grades
- plus, at max 10 "Green Cards":
  - **BaWISO/WiRe** - Avg. grade 1,5 among these 3 courses:
    - Grundzüge der Programmierung,
    - Datenbanksysteme,
    - Einführung i.d.Statistik
  - **BBE** - Avg. grade 1,5 among these 3 courses:
    - Quantitative Methods 1
    - Quantitative Methods 2
    - Business Analytics 2

- online entry exam – all recommended to take the entry exam (even if you qualify for a green card!)

*Note: all (also) green card holders need to register for the entry test/tutorials on LPIS! → counts as registration of interest to the SBWL)*
Our Data Science@WU Community:

- DataScience@WU - Alumni network on LinkedIn
  - Keep in touch with our company coaches, lecturers, current students and alumni!

  once per semester we meet at the "DataScience@WU-Stammtisch" with students, lecturers, industry coaches and alumni...

For our own research on Data Science, Data Quality, etc. visit http://data.wu.ac.at
Our Data Science@WU Community:

**Florian Jauernig**  •  1st  
MSc Student Digital Economy | WU Vienna

The Data Science specialization is easily the best option for any student in the Information Systems branch of WU's bachelor program in Business and Economics. It helps students reinforce their Python expertise and analytical skills, teaches problem solving in a highly relevant area and builds bridges to interesting companies that might even follow up on the final project with job offers. While the work load is significant, the learning effect is also unparalleled. I can recommend this specialization without any limitations.

**Katarina Lucic**  •  1st
Developing individuals, organizations and myself has always been a c...

Together with Axel I started the Data Science Program and was responsible for it. Before that, I had a preference for statistics but no idea about what Data Science really is. My task was, among other things, to advise students on the program. To be able to do this better and out of curiosity, I visited the program myself. I found and still find that the program is very valuable and I could learn a lot.

I now work as Head of Recruitment and Personnel Development and what I learned in the program has accompanied me in every position and activity so far. It changes the way you solve problems. What has changed significantly for me is that I am now much more inclined to Data Driven Decision Making. I argue wherever possible with results from data analysis. E.g. which courses we will offer in the future but also how we will design our recruiting in the future.

**Raphael Dachs**  •  1st
Building and Breaking AI

The Data Science SBWL was easily the most valuable learning experience of my whole undergraduate degree. Not only because of the interesting courses but because of the friends and relationships formed throughout. And even though we were part of the first Data Science SBWL cohort (which is now already quite a while ago), I am still in contact with a few of them.

I was already holding positions as a working student/part-timer in companies as a data scientist/analyst but I feel like there were a lot of things introduced to me that deepened my understanding and showed me new approaches.

After finishing the course I went into consulting as a Machine Learning Engineer (actually got offered an internship pretty much at the end of course 5) and have been doing it ever since (... and founded my own AI company last year).

**Horia Stefan Dinu**  •  1st
Master student at WU

The Data Science specialisation is the best course path i took at WU during the undergraduate program. Most importantly, I had almost no knowledge in the topic at start, and after one year i built a great foundation for further learning. The SBWL certainly does not make you a senior data scientist, but it surely can spark your interest and help one find entry-level positions in the industry. Moreover, I enjoyed the professors teaching style and the materials covered, which helped choose to continue studying at WU in the Digital Economy master (which i can also wholeheartedly recommend).
Questions?

Looking forward to seeing many of you in the coming semester!!


All further info on our Webpage:
- description
- green card
- contact (for questions)
- registration details/dates

Important Dates:

**Tutorials (Online):**
- Mon, 12.02.2024 13:00-16:00
- Tue, 13.02.2024 13:00-16:00

**Entry Exam (Online):**
- Thu, 15.02.2024 08:00-10:00

Don’t miss the LPIS registration!