

# 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?

Harvard  
Business  
Review

# Data Scientist: The Sexiest Job of the 21st Century

by **Thomas H. Davenport** and **D.J. Patil**

FROM THE OCTOBER 2012 ISSUE

<https://hbr.org/2012/10/data-scientist-the-sexiest-job-of-the-21st-century>

22.05.2015

**KARRIERE SPIEGEL**

Wer will noch Berater werden?

Von Klaus Werle



DPA

"50 Prozent glauben, dass Technologieriesen wie Google mit ihrer Big-Data-Kompetenz künftig in direkte Konkurrenz zu den angestammten Consultants treten."

Harvard  
Business  
Review

ANALYTICS

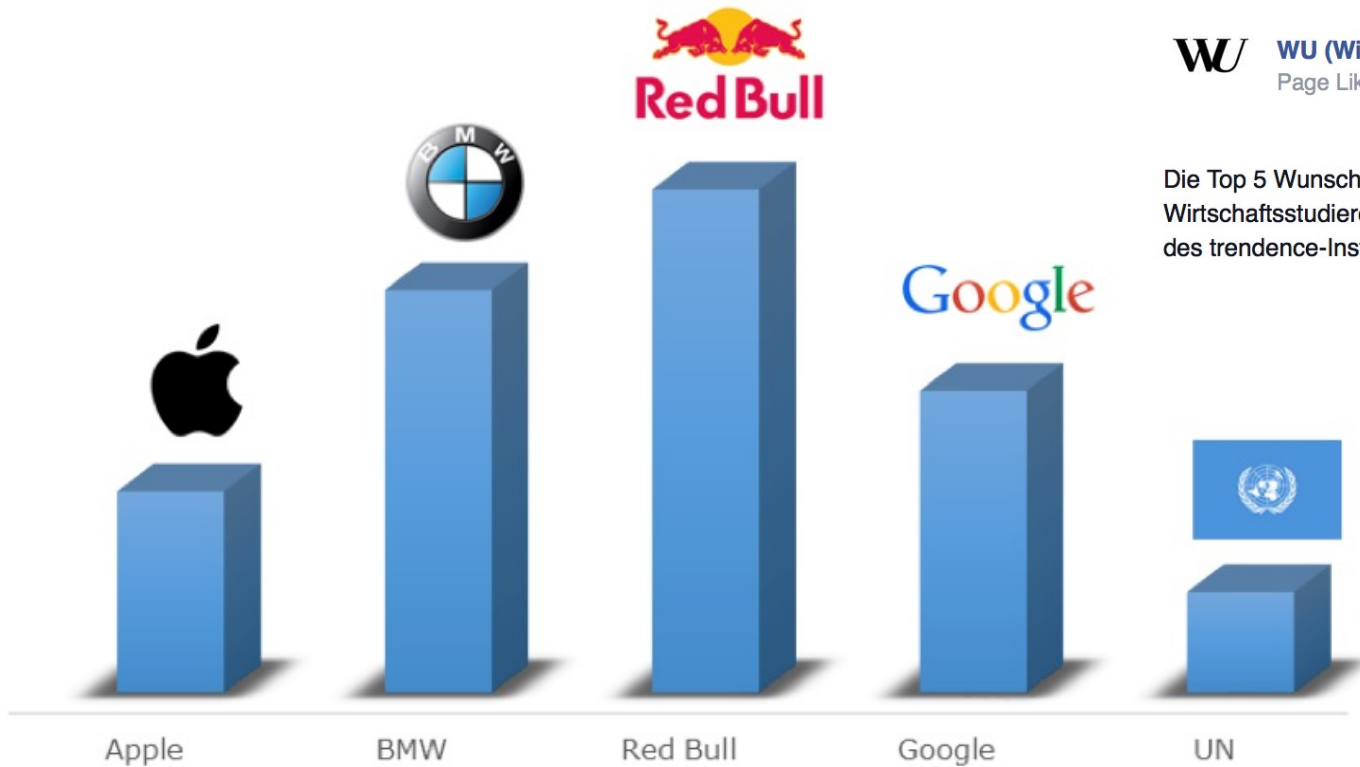
# The Kinds of Data Scientist

by **Yael Garten**

NOVEMBER 06, 2018

<https://hbr.org/2018/11/the-kinds-of-data-scientist>

# What do our students think?



**WU** WU (Wirtschaftsuniversität Wien)  
Page Liked · 21 April · Edited ·

Die Top 5 WunscharbeitgeberInnen für  
Wirtschaftsstudierende - zumindest laut einer Umfrage  
des trendence-Instituts. Stimmt's?

<https://www.facebook.com/wu.wirtschaftsuniversitaet.wien/photos/a.151406758221539.26987.147250285303853/1043735715655301/?type=3&theater>

# Big Data Use cases and skills requirements:

Google

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



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

Apple to Invest €1.7 Billion in New European Data Centres

State-of-the-art facilities in Ireland and Denmark will run on 100 percent renewable energy

CORK, Ireland—February 23, 2015—Apple® today announced a €1.7 billion plan to build and operate two data centres in Europe, each powered by 100 percent renewable energy. The facilities, located in County Galway, Ireland, and Denmark's central Jutland, will power Apple's online services including the iTunes Store®, App Store™, iMessage®, Maps and Siri® for



**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.



# Other known examples of data-driven businesses:

1998 2006 2007 2009 2013

DVD.NETFLIX.COM

↑ OPEN ACCOUNT THIS IS ALSO YOUR

NETFLIX sense8  
↑ Top in Germany

NETFLIX sense8  
↑ Top in Brazil

NETFLIX sense8  
↑ Top in US

NETFLIX sense8  
↑ Top in UK

NETFLIX sense8

NETFLIX sense8

NETFLIX sense8

A NETFLIX ORIGINAL SERIES  
**HOUSE of CARDS**  
▶ PLAY

**FROM DVD DISTRIBUTION TO ORIGINAL CONTENT**

Granular Recommendations, Personalized Trailers, Posters, Content

<http://lora-aroyo.org> <http://slideshare.net/laroyo> @laroyo <http://crowdtruth.org> CrowdTruth 27

Source:

<https://www.slideshare.net/laroyo/keynote-at-international-conference-of-art-libraries-2018-rijksmuseum/27>

# Other known examples of data-driven businesses:

1994 → 2003 → 2006 → 2011 → 2013 Clip slide

**amazon** **A9** **aws**  Amazon Machine Learning



**amazon** instant video

**amazon** studios

**FROM BOOKS TO DATA-DRIVEN BUSINESS**

Source:

<https://www.slideshare.net/laroyo/keynote-at-international-conference-of-art-libraries-2018-rijksmuseum/27>

# Important global trend: Open Data

(=machine-readable, freely re-usable data on the Web)

- Cities, International Organizations, National and European Portals, Int'l. Conferences:



THE WORLD BANK  
**Open Data**



**European Union Open Data Portal**



**DATA.GOV**



**DATA.GOV.UK** Beta  
Opening up Government



Regierungsprogramm 2020 – 2024

## Open Data: Offene Daten als Chance für Transparenz

- Die Bundesregierung bekennt sich zur umfassenden und rechtzeitigen Umsetzung der Public-Sector-Information (PSI)/Open Data-Richtlinie der Europäischen Union und wird die PSI-Taskforce tatkräftig unterstützen und im kontinuierlichen Austausch sein.
- Eine Teilnahme an Open Government Partnership wird geprüft.
- Erstellung eines Masterplans (inklusive Machbarkeitsstudie), um eine Strategie zur Nutzung von Open Source Software im Bund zu entwickeln.

please also visit  
<http://data.wu.ac.at>



### Projects

**WU Open Data Portal**  
WU lectures, rooms and organizations  
data.wu.ac.at is an Open Data portal where you can find data about lectures, rooms and organizations at WU.  
121 datasets

**Open Data Portal Watch**  
Monitoring & exposing portals' metadata  
Open Data Portal Watch assesses the evolution of the (meta) data quality of about 260 Open Data portals over since September 2014.  
259 portals

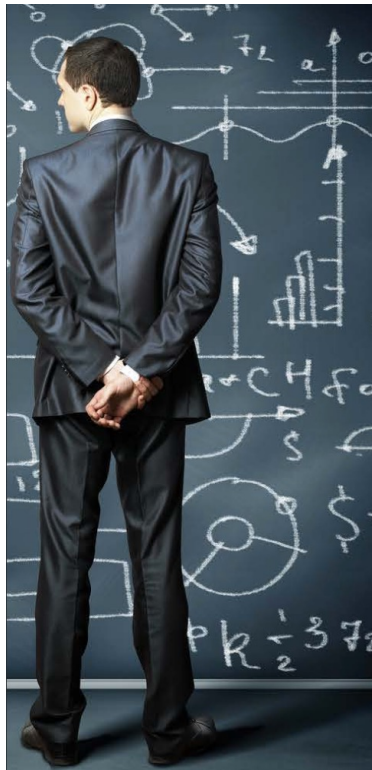
**CSV Engine**  
Search & enrich CSVs  
The CSV Engine is a collection of tools and services for processing and enriching CSV files.

# What is the new thing about Data Science?

*Die Schlüsselposition „Data Scientist“ ist für Unternehmen da, wo innovative neue Lösungen entwickelt werden müssen, abseits des „Tagesgeschäfts“.*

Ausbildung und Arbeit der Zukunft in der Ära von Big Data

## Das neue Berufsbild „Data Scientist“



<http://www.ocg.at/sites/ocg.at/files/medien/pdfs/OCG-Journal1503.pdf#13>

<https://executiveacademy.at/en/news/detail/data-governance-vs-data-science-twins-but-nothing-alike>





# Trend to new job descriptions

- Data Science is also becoming important on the Executive level!

The screenshot shows a web browser displaying a Forbes article. The URL is <https://www.forbes.com/sites/ciocentral/2016/08/08/big-data-and-the-emergence-of-the-chief-d>. The article is dated August 8, 2016, at 01:48 PM, with 8,326 views. The author is Randy Bean, CEO and managing partner of consultancy NewVantage Partners. The article is part of 'The Little Black Book of Billionaire Secrets' series. A sidebar on the left contains social media sharing options for Facebook, Twitter, LinkedIn, and Google+. A large image at the bottom of the article shows a network of nodes and connections, representing big data.

The screenshot shows a Wired article titled 'The Rise of the Chief Data Officer'. The URL is <https://www.wired.com/insights/2014/07/rise-chief-data-officer/>. The article is categorized under 'BUSINESS', 'CULTURE', 'DESIGN', 'GEAR', 'SCIENCE', and 'SECURITY'. A sidebar on the left contains social media sharing options for Facebook, Twitter, Comment, and Email. The main content area features a large image of a man in a suit standing in front of a world map, with the text 'THE RISE OF THE CHIEF DATA OFFICER'. Below the image is a caption: 'Image: Victor1558/Flickr'. The article text begins with 'FEW WOULD ARGUE that information technology and data have become ingrained in nearly every aspect of today's business. Along the way — in no small part due to mobile phone contracts — they now have a major presence on our...'. A 'Download the Guidebook' button is visible. A vertical banner on the right side of the article reads 'EMERGING TECH COUNCIL' and 'Join Today'.

# Data Scientists' Skills

	Data Analyst	Data Scientist
Technische q	Analytisches Denken	Ausgeprägte Mathematik und <b>Statistik</b> Kenntnisse
	DBMS/Datenmodellierung	<b>DBMS/Datenmodellierung</b>
	Bedienung von Tools (Marktanalysetools)	Data Mining
	<b>Erprobte Analyseprozesse</b> anwenden	Visualisierung
	Programmierkenntnisse vorteilhaft aber nicht notwendig	Entwicklung von Algorithmen ( <b>front-to-end-solutions</b> ) <b>Methodische Abstraktion</b> von Algorithmen
Wirtschaftl. Fähigkeiten	Detailliertes Domänenwissen	<b>Fachbezogenes Hintergrundwissen</b>
	Projektmanagement	<b>Kreativität</b> , Ideen: " <b>die Nadel im Heuhaufen finden</b> "
	Ausgeprägte Kommunikative Fähigkeiten	Ausgeprägte <b>Kommunikative Fähigkeiten</b> – „ <b>Data Science Teams</b> “

Adaptiert/ergänzt, Quelle: "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:



ORACLE®



SIEMENS  
Ingenuity for life



# Data Science SBWL: Organisation

<https://www.wu.ac.at/dpkm/teaching/sbwl-data-science/>

## ▪ Schedule:

SS 2022	WS 2022/2023
<ul style="list-style-type: none"><li>• Data Processing 1</li><li>• Data Processing 2</li><li>• Data Analytics</li></ul>	<ul style="list-style-type: none"><li>• Applications of Data Science</li><li>• Data Science Lab</li></ul>

## - Next cohort:

WS 2022/2023	SS 2023
<ul style="list-style-type: none"><li>• Data Processing 1</li><li>• Data Processing 2</li><li>• Data Analytics</li></ul>	<ul style="list-style-type: none"><li>• Applications of Data Science</li><li>• Data Science Lab</li></ul>

# Data Science SBWL: Organisation

<https://www.wu.ac.at/dpkm/teaching/sbwl-data-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:

- grades transcripts/Avg grades:
- at max 10 "Green Cards":

Details described on our Web page:  
<https://www.wu.ac.at/dpkm/teaching/sbwl-data-science/>

- **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:

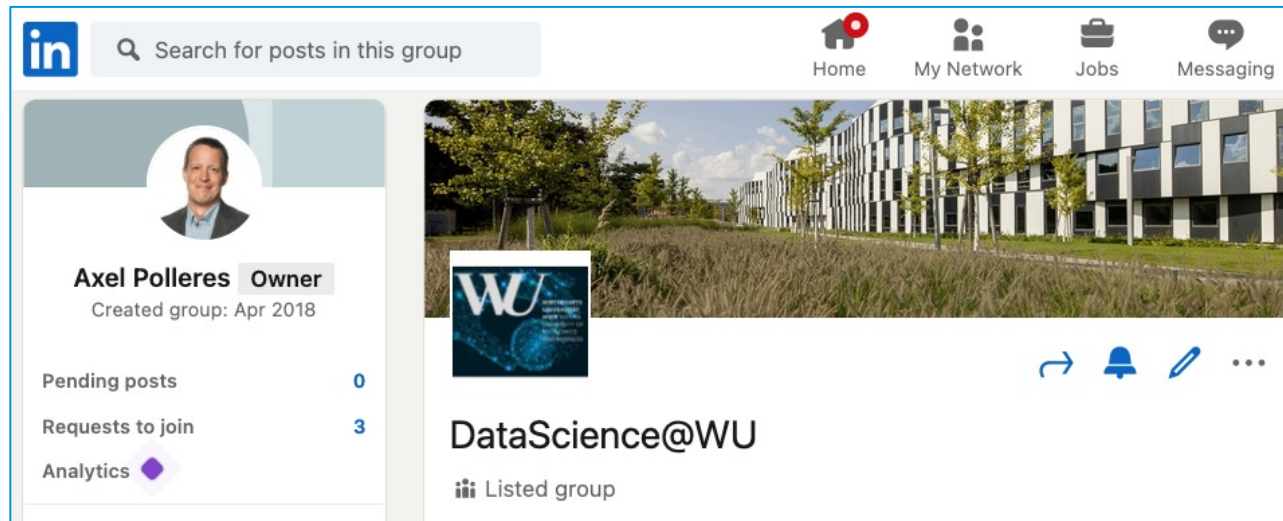
- Quantitative Methods 1
- Quantitative Methods 2
- Business Analytics 2

- 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!



- (As soon as allowed again):
  - once per semester we meet at the "**DataScience@WU-Stammtisch**"

## Questions?

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

<https://www.wu.ac.at/en/dpkm/teaching/sbwl-data-science>

All further info on our Webpage:

- description
- green card
- contact (for questions)
- registration details/dates

### Important Dates:

#### ***Tutorials (Online):***

28 January 2022, 08:30-11:30

28 January 2022, 13:00-16:00

#### ***Entry Exam (AudiMax):***

1 February 8:00-10:00

Registration LPIS starts: 27 Jan

The screenshot shows the website for the SBWL Data Science program. The header includes the WU logo and the name of the Institute for Data, Process and Knowledge Management. A navigation menu is visible in the top right corner. The main content area features a large image of a modern building, followed by a breadcrumb trail: Home \ SBWL Data Science. The main heading is 'SBWL Data Science'. Below this, there is a section titled 'SBWL „Data Science“' which contains introductory text about the program's focus on Big Data and interdisciplinary research. To the right of the main content, there is a 'Teaching' sidebar with links to 'Informationen zum Wahlfach Design von Informationssystemen und Algorithmisches Denken und Programmierung', 'SBWL Process & Knowledge Management', 'SBWL Data Science', 'Master Specialization IS & Processes', 'Master's Program Digital Economy', and 'Data Science Program at the WU Executive Academy'.