



© Lisa Beller

BUSINESS ANALYTICS AND ECONOMETRICS

FROM DATA TO INSIGHTS

Master of Science

Faculty of Management, Economics and Social Sciences
University of Cologne



UNIVERSITY OF COLOGNE

The Faculty of Management, Economics and Social Sciences

The **University of Cologne** is one of the oldest and most prestigious European universities. It has produced several Nobel and Leibniz Prize winners and is part of the only economic cluster of excellence in Germany. Founded in 1388, the University of Cologne is a leader in many disciplines and a member of many international networks.

The **Faculty of Management, Economics and Social Sciences** (also known as "WiSo Faculty") is part of the University of Cologne and has over a century of experience in educating new generations of business professionals, economists, social analysts and political experts. As one of Germany's largest educational institutions, the WiSo Faculty regularly ranks among the top providers of management and business education.

As a student of the WiSo Faculty, you benefit from a teaching approach based on theory and methods in combination with research and applications.

The traditional diversity of subjects, top-level research, practical relevance and internationality allow the WiSo Faculty to stand up to national and international comparison and to achieve top positions in international research rankings. Through its interdisciplinary research approach, the Faculty's chairs and institutes make a major contribution to the excellent research at the University of Cologne.

The education provided at our Faculty has benefited from many years of experience in working with companies and visiting lecturers from different professional fields. Several faculty members are professionals and managers who bring important industry experience to the programmes, resulting in sector-specific, up-to-date content for our students. This ensures that our interdisciplinary programme reflects the real world and ideally combines practice and theory, while also promoting knowledge sharing.

Global markets have fundamentally changed the situation of economic and political action. It will only be possible to meet the global challenge of society by changing attitudes and organisations. To achieve this, however, the underlying global interrelationships must be investigated, understood, and considered by decision makers.

By pursuing a degree through this programme at the WiSo Faculty, you will gain the knowledge and skills you need in order to identify and solve complex issues in the private, public and non-profit sector with the help of data-driven solutions. You will focus on data analytics, econometrics, and (digital) entrepreneurship and business strategy, which will prepare you for a successful career in data analytics in different contexts.



„This programme has a novel structure and content based on the excellence and close integration of management, economics, social sciences and information systems at the WiSo Faculty. It provides you with knowledge, methods and skills that can be directly applied and implemented to solve complex problems in practice.“

Markus Weinmann, Academic Director Master Business Analytics & Econometrics

FACTS AND FIGURES ABOUT THE WISO-FACULTY

Studies at the WiSo Faculty of Cologne University help to establish an excellent basis for your further professional and personal career paths. With nearly 8,000 students and a host of departments and academic staff, the WiSo Faculty is one of the largest and most renowned schools of management, economics and social sciences in Europe.

- ▶ **7,901** national and international students
- ▶ **149** partner universities worldwide*
- ▶ **91** professors
- ▶ More than **200** research and teaching assistants

Enrolling in a programme at the WiSo Faculty will give you everything you need to take the next step in furthering your career. One of Germany's most prestigious educational institutions, the school regularly ranks among the top providers of management and business education. The following is an overview of current rankings:

1st	In the current Academic Ranking of World Universities ("Shanghai Ranking") by Subject, the University of Cologne ranks first in the national evaluation for "Management", "Business Administration" and "Sociology", as it did last year.	2nd	According to the WirtschaftsWoche research ranking, the University of Cologne is one of the most research-intensive German-speaking universities. In business administration, it ranks second within Germany.
1st	The Supply Chain Management (SCM) Journal List Ranking places the University of Cologne in first place in Germany.	3rd	According to the WirtschaftsWoche personnel ranking, which asks HR managers in German companies which universities train students best for their needs, the University of Cologne is currently in third place.
1st	In the AIS 8 Information Systems Ranking in the field of Business Information Systems, the University of Cologne is top of the list in Germany.	3rd	Prof. Dr. Erik Hornung is the third best researcher at a German university in the Handelsblatt economist ranking "Researchers under 40 (overall research performance)".

As of Jan 22

* The WiSo Faculty maintains excellent partnerships with 149 leading institutions of higher education across the world on different levels of study, enabling its students to spend time abroad within a range of study and exchange programmes. Students can choose from an attractive range of partner universities, depending on their chosen path of study.

BUSINESS ANALYTICS AND ECONOMETRICS (M.SC.)

Key Facts



Degree:
Master of Science



Duration:
4 Semesters



Language:
English



Credits:
120 ECTS



Content:
Studying & Applying Methods as well as Tools of Modern Data Analytics, Econometrics, and (Digital) Entrepreneurship and Strategy to Solve Real-world Problems in Business and Economics



International:
1 Optional
Semester Abroad

This programme provides you with:

- fundamental analytics and technology skills.
- groundbreaking knowledge and the mindset for a successful career in data analytics for business and economics.
- vital skills for starting and managing a business in the digital age and resolving complex issues in today's organisations.
- an ability to gather, manage and analyse (big) data as well as to visualise, present and use insights gained from the data.

Data analytics, digital innovation and big data are crucial developments for the upcoming challenges in all business and economic areas. This programme offers a unique blend of traditional analytics (e.g. statistics, econometrics, optimisation, simulation) and modern analytical approaches (e.g. machine learning and artificial intelligence using R and Python) and merges these approaches with the teaching of groundbreaking knowledge in the areas of economics, management, and entrepreneurship.

This programme is right for you if you ...

- have successfully completed a bachelor's degree in economics, mathematics/statistics, computer science, physics, information systems or business administration with an international background.
- possess an affinity for mathematics, statistics and digital technologies as well as the ability to use your skills in these areas to solve real-world problems.
- took a liking to an entrepreneurial mindset.



"What excites me about my studies is that you can find a wide range of opportunities for every pursued career.

By combining current methods from data science, statistics and machine learning with business and economics concepts, you are ideally prepared for both a career in industry and academia."

Richard,
student at the WiSo Faculty

PROGRAMME OVERVIEW

Preparing you for future challenges

We believe in the right balance between sound theoretical foundations practical relevance in a close interaction between the fields of business, analytical methods, and digital technologies.

The programme therefore focuses on:

- modern technologies and digitalisation (e.g. big data, digital innovation, digital transformation, digital business strategy, and digital entrepreneurship)
- the latest tools and methods in data analysis (e.g. machine learning and AI or methods from Econometrics as well as Bayesian data analysis)
- tackling challenges arising from digitalisation (e.g. data privacy and security, algorithm ethics).

Capstone Project

As a highlight of the curriculum, the Capstone Project brings you together with corporate/public partners to solve real-world business, economic and societal problems.

Over a period of one semester, you will work as a team using cutting-edge approaches to data analytics in order to solve these problems, all while interacting within your team and with your partner organisation.

Link to the practical world

The programme is taught by an internationally recognised expert faculty in business, economics, entrepreneurship and information systems, who:

- are approachable and down to earth
- are ready to help you find the answers to your questions or put you in contact with someone who can.
- support you in your entrepreneurial and/or societal activities.

Therefore, the programme is integrated with the University's Excellence-Start-up-Center (ESC) initiative and works closely together with the University of Cologne's incubator GATEWAY.

Additionally, you also have the opportunity to conduct research with faculty members and to explore a diverse array of applications and methodologies in business analytics and econometrics.

CURRICULUM

1	Foundation of Data Analytics 30 CP	
2	Digitalization and Data Analytics 30 CP, including Capstone Project with Industry Partners, and Elective 1	
3	Econometrics Track	Business Analytics Track
	Focus on Empirical Methods 24 CP	Focus on Analytics for Business 24 CP
	Elective 2 6 CP	Elective 2 6 CP
4	Master Thesis 30 CP	

Semester

Specialisation

During your 3rd semester you have the option to choose between one of two tracks:

- The **Econometrics Track** focuses on advanced statistical and analytical methods to identify and resolve complex economic issues in the private, public and non-profit sectors. This track places a strong emphasis on combining traditional and modern approaches to data analytics.
- The **Business Analytics Track** focuses on applying approaches and methods of data analytics to solving complex business problems with (big) data. This track places a strong emphasis on forming a data-driven digital strategy, building a data-driven business model, engaging in digital entrepreneurship and founding one's own start-up company.

INTERNATIONAL

English taught programme

As global challenges need global solutions, this programme is taught in English to attract international talent. For the majority of our study programmes we receive applications from a large number of different nationalities, which means you can be sure of an international and intercultural environment.

Optional semester abroad

Our cooperation agreements with an extensive number of excellent partner universities worldwide provide you with attractive options for your optional semester abroad. In addition, you may enrich your studies through our short programmes in New York and Hong Kong or through a summer school.

Unique international team

An internationally recognized expert faculty offers courses on business administration, econometrics and information systems within this programme and will assist you even outside the classes.



CAREER OPPORTUNITIES

In an increasingly digital world, data becomes ever pervasive and ubiquitous. The methodical and technological skills required for the analysis of this data are taught in a scientifically sound manner within the **M.Sc. Business Analytics and Econometrics** programme.

The programme is designed to enable you to

- identify and resolve complex issues in the private, public, and non-profit sector.
- purposefully use your quantitative, technical, and analytical methodological skills you acquired during the course of study.
- work as a data and business expert in national and international markets.

You will leave the University of Cologne successfully prepared to interpret and use data in order to drive decisions in relevant sectors like marketing, finance, supply chain, strategy, corporate development, entrepreneurship, macroeconomics, etc.

You will be able to apply your skills across a broad range of industries including management consulting, financial services, technology, energy, healthcare, manufacturing, technology and more.

As a graduate, you can take on roles such as data analyst, senior analytics consultant, business intelligence analyst, insurance risk estimation analyst and more.

The special emphasis on and close connection to the Entrepreneurship Cologne initiative provides you with an opportunity to start your own business or work for start-ups.

Should you decide that you want to pursue an academic career, we support you in conducting research with faculty and in exploring a diverse array of applications and methodologies in business analytics and econometrics.



„My studies equipped me with a broad skillset of quantitative methods that proved themselves both highly useful and sought-after in the economics job market. I benefitted from the professors at UoC being very approachable and eager to provide the best learning environment for their students, staying abreast of academic developments and discourses. Moreover, the close-knit network of international partner universities is a great asset of the WiSo faculty.“

Chiara Anselmetti, Economic Analyst at Frontier Economics and Alumna of Faculty of Management, Economics and Social Sciences, University of Cologne.



„My studies at Cologne University have provided me with a multifaceted career utility. Alongside with cutting edge technical, quantitative, and economic skills, I learned to master complex issues and to distinguish between relevant and irrelevant information.“

Matija Kontrec-Goedeke, Performance and Risk Analyst at BNP Paribas and Alumnus of Faculty of Management, Economics and Social Sciences, University of Cologne.

COLOGNE

An open minded and science-centred city!

Cologne is located within a metropolitan area of about 13 million people in the heart of Germany's economy which makes it easy for students and faculty to collaborate with great companies. It is one of Germany's most attractive locations and offers a vibrant student life.

With around 103,000 students and a lively start-up culture, Cologne is the economic and scientific centre of the Rhineland region. In addition to 17 universities and business schools, the area is also home to numerous internationally renowned research institutions as ESA European Space Agency or Gesis – Leibniz Institute for Social Sciences, with knowledge transfer to industry and society playing a key role. Successful transfer structures include the university's Excellence Start-Up Center GATEWAY start-up service, the start-up network cologne e.V. and the Digital Hub Cologne.

Cologne is also proud of its reputation as a vibrant and tolerant city and at the same time being both multicultural – with almost 25 % non-German citizens from 183 different nations – and strong in its local identity. Karneval, Cologne's famous carnival season every February, and the popular local beer "Kölsch", brewed exclusively in Cologne, are only two examples of the vivid cultivation of the city's traditions.

- ▶ Over **1 million** inhabitants in the city of Cologne
- ▶ **13 million** inhabitants in the metropolitan area of Cologne
- ▶ More than **100,000** students in Cologne
- ▶ Over **one third** of Cologne's total area is covered by public parks, sports grounds and nature areas
- ▶ **1** famous Gothic cathedral, the "Kölner Dom"
- ▶ **Unlimited** opportunities to fall in love with the city

Official Cologne Facts & Figures 2019 by City of Cologne



Liebe deine Stadt



INFORMATION

Online Application:



Application information and requirements

Application process and deadline:

- Applicants with a German bachelor degree apply via KLIPS
- Applicants with a non-German bachelor degree apply with their VPD document issued by uni-assist via KLIPS
- Application deadline is **June 15th**

Requirements and selection procedure:

- A Bachelor degree or equivalent (worth at least 180 ECTS credits) in Economics, Mathematics/Statistics, Computer Science, Physics, Information Systems or Business Administration and an overall grade point average of at least 2.7 (German grade). Applicants must meet the following requirements:
 - at least 30 ECTS in the fields of business administration and/or economics
as well as
 - at least 24 ECTS in the fields of statistics and/or mathematics and/or information systems and/or informatics

or

- at least 48 ECTS in the fields of statistics and/or mathematics and/or information systems and/or informatics
- English language skills level B2 CEFR

The Admissions Board will communicate its decision by the end of July. Enrolment usually takes place in August.

Detailed information and contact

We are happy to support you in achieving your goals: for students the WiSo Student Service Point offers not only advice on studying but also support on all aspects of career choice, career planning and the application process:



© Lisa Beller

WiSo Student Service Point
Phone: +49 (0) 221/470-8818
[wiso-studentservice.uni-koeln.de](https://www.wiso-studentservice.uni-koeln.de)





"Being one of the worldwide largest Faculties of Business, Economics, and Social Sciences, we bring together excellent researchers, students, alumni, and organizations in a friendly and stimulating environment to jointly address today's grand challenges. Our Faculty is part of an outstanding network of universities and cooperates with leading organizations. This leads into a great reputation in teaching, research and transfer activities, which is reflected in excellent rankings."

Prof. Ulrich W. Thonemann, PhD
Dean



Today's ideas.
Tomorrow's impact.

Faculty of Management, Economics and Social Sciences
University of Cologne
Albertus Magnus Platz
50923 Cologne
www.wiso.uni-koeln.de



PRME

an initiative of the
United Nations Global Compact