

*** How do social networks adapt and evolve over time? *** How does human cooperation arise in networked societies? *** How do rumors spread online? *** How can we identify the key functional regions of our brain by looking at its wiring? *** How can we detect cartels and corruption in economic networks? *** How does a pandemic spread through a population, and what can we do to slow it down? *** How does network structure reflect the socio-economic profile of a population? *** How

EARN A DEGREE ACCREDITED IN AUSTRIA AND THE U.S.

MS in Social Data Science* / 1 OR 2 YEARS (depending on the duration of previous undergraduate studies)

/ FULL-TIME / In this program, students learn to collect and analyze social big data to understand the digital world with a socially responsible and critical approach. They study computational social science by combining cutting edge data science tools with approaches of social sciences. The MS SDS program will provide you with the most wanted skills on the data science market including methods of behavioral data collection, machine learning, advanced statistics, data ethics and more. You will have the opportunity to join the professional applied data science tracks for the digital industry or academic specialization tracks including economics, environmental science, political science and policy if you want to enter the world of research. You will complete your training with a real-life capstone project at a data science company or academia.

PhD in Network Science / This pioneering, research-driven program will introduce you to the theory, methods and data-driven observations and analysis of networks so you can make sense of complex phenomena, which cannot be predicted by the properties of the single units but are rooted in their relational network structure. As the world's first department dedicated to the study of today's ever-growing field of network science, we offer advanced training and challenging coursework on the basic concepts and theories of large-scale networks and hands-on experience in taming massive datasets.

Working across disciplines, you will learn how to measure and predict the dynamics of complex networks – biological, social, physical or technical. You will have the opportunity to focus on a specific field, such as the theory and applications of complex networks in economics, sociology, political science or environmental science, and take part in cross-disciplinary research projects. By the end of your studies, you will develop into an independent researcher who is able to uncover and untangle the patterns of our connected world.

→ networkdatascience.ceu.edu/phd-program-network-science

* The program is subject to approval by AQ Austria.

“Bringing together curious minds from a diverse range of disciplines, the Department of Network and Data Science inspires and incubates fresh research ideas through interdisciplinary collaborations. There are plenty of opportunities here for junior researchers to learn and connect in the field of complexity science. Come join our playground.” **YIJING CHEN** *China*



SAMPLE COURSES

- * Fundamental Ideas in Network Science
- * Structure and Dynamics of Complex Networks
- * Statistical Methods in Network Science
- * Social Networks
- * Data Mining and Big Data Analytics
- * Scientific Python
- * Agent-Based Models
- * Data and Network Visualization
- * Introduction to Computational Social Science
- * Dynamical Systems on Networks

ELEVATE YOUR RESEARCH

EXPLORE BIG DATA / efficient ways to analyze, model and visualize networks with millions of people * **UNDERSTAND SOCIAL PROCESSES** / friendships and phone calls, the spread of ideas and the emergence of order from chaos * **DISCOVER THE SECRETS OF SUCCESS** / how teams innovate, scientists make breakthroughs and entrepreneurs make their first million * **UNCOVER HIDDEN WEBS** / political corruption, terrorist networks, global finance and the wirings of the brain * **INVESTIGATE SOCIO-ECONOMIC DIFFERENCES** / inequalities, social stratification, segregation in networks, socio-economic status * **EXAMINE URBAN NETWORKS** / multimodal transportation systems, mobility and sustainability, infrastructural networks and smart cities * **MASTER MATHEMATICAL FOUNDATIONS** / graph theory, dynamic processes and graph limits

SPARK YOUR CAREER

SKILLS OUR STUDENTS GAIN * **Transferable skills** * Data mining and big data analytics * Network analysis * Data and network visualization **Professional skills** * Python

Be it academia, government or business, there's a rapidly growing demand for network and data scientists in our increasingly interconnected, global society. Applied network scientists are sought after by tech giants and digital disruptors who want to get insights about human behavior like their social and mobility networks to improve services and user's online experience. Students can also prepare for careers as consultants for developing business infrastructures or as risk mitigation experts at major financial institutions.

5 INTERNATIONAL RESEARCH PROJECTS, INCLUDING AN ERC SYNERGY GRANT

31 ARTICLES IN PEER-REVIEWED JOURNALS IN 2021-2022

FUND YOUR STUDIES

Access to education is one of CEU's core values. It guides us in setting as affordable tuition fees as possible - without impacting the quality of the education we provide. Each year CEU offers talented **master's** students generous, merit-based, partial tuition awards and scholarships to help them focus on their studies. * **Doctoral scholarships** include a full tuition award and a monthly stipend for living expenses. → ceu.edu/financialaid

APPLY

→ ceu.edu/apply • Application form • CV • Proof of English proficiency • Letters of recommendation

PROGRAM-SPECIFIC REQUIREMENTS / **Master's programs** • Bachelor's degree in one of a broad range of disciplines, including computer science, data science, physics, sociology, environmental science, public policy, political science or economics • Strong interest in interdisciplinary research • Demonstrated ability to do quantitative studies • Detailed account of earlier studies • Statement of purpose * **Doctoral program** • Master's degree in one of a broad range of disciplines, including computer science, data science, physics, sociology, political science or economics • Strong interest in interdisciplinary research • Demonstrated ability to do quantitative studies • Detailed account of earlier studies • Statement of purpose

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