

FACTSHEET

UNIVERSITY COLLEGE TWENTE



ABOUT UNIVERSITY COLLEGE TWENTE

University College Twente is the Liberal Arts and Sciences college of the University of Twente. It offers a three-year, international Honours programme for motivated and ambitious students: the Bachelor's in Technology and Liberal Arts and Sciences, or ATLAS in short. UCT is based on the American model of liberal education, which means you get the freedom to design your own study programme. As a student you learn and live together with your fellow students on campus. The programme is characterised by challenging encounters with important issues and more a way of studying, rather than studying a specific course or field of study.

Why choose for University College Twente?

- Combine technology with social sciences
- Choose your own study path
- Small-scale and highly personalized
- International approach

For more information visit our website

<https://www.utwente.nl/en/education/bachelor/programmes/university-college-twente/>

COURSES ON OFFER AT UCT

In the spring semester of academic year 2021-2022, UCT welcomes 5 University College students following either courses at UCT combined with general UT courses or a HTHT module

UCT Research Project (9EC, semester 3) [In this project you will collaborate with dedicated UCT students]

International Relations Theories – 6EC: This course explores a wide range of theories, from classical Realism and Idealism to more contemporary approaches like Feminism, Post-positivism, and Post-colonialism. We will also cover topics such as Globalization, Development, and Environmentalism. Even though this is a course about theories, the approach we will use is pragmatic. To fully understand the application of the theories, we will use practical examples: critically assessing movies - looking how we can use theories as a lens when analyzing them - to reading research papers, newspapers, and listening to guest lectures. The learning approach we will use is the flipped classroom. That means that you'll have to prepare weekly readings and watch the assigned movies to be able to contribute to in-class debates. This class is writing intensive, and it will prepare you to write longer research papers.

Trust, Crisis and Risk Perception – 3EC: In this course, we will explore the different disciplinary perspectives on trust and highlight the roles of trust in crisis and risk communication. Specifically, the course will look into the dynamics behind the creation of trust, the effects of trust on people's attitude and behavior, and the strategies employed to repair trust violations. More importantly, we will also look into the psychology of risk perception and the critical role of trust in crisis and risk communication.

Analysing Spatio-temporal data with Geographic Information Systems – 3EC: This 3 EC elective is for those who want to further specialise in Geo-Information Systems (or GIS for short). There will be an Engineering focus on GIS software tools. This takes you through all stages of working with spatio-temporal data: Understanding the various sources (from satellite imagery to twitter feeds); ways to store these data and to model them; discovering and extracting information from the data (using machine learning and statistical techniques); and finally using dissemination and data visualization strategies to communicate your results to stakeholders.

Atlas Math A: Multivariate functions and optimization – 2EC: This course covers the topic of functions of several variables and extend the basic ideas of single variable calculus (domain, limits, continuity, differentiation) to such functions. Multivariable functions are essential to describe physical or real life phenomena in domains like Epidemiology, Population Biology and Ecology, Thermodynamics, Electromagnetism and Economics.

Atlas Math B: Multivariate functions, integration and vector calculus – 2EC: This course is an introduction to the (Riemann) integration of functions of more than one variable, with an emphasis on integration of functions with two or three variables. After the definition of the integral, and the application to integration over simple regions, we consider more complicated areas: curvilinear coordinates and transformation of variables. Finally, the course provides an introduction to vector calculus, using the divergence and Stokes theorems to solve typical physical application problems.

Atlas Math C: Linear Algebra II: eigenvalues, eigenvectors and dynamical systems – 2EC: This module introduces the concepts of vector spaces and linear maps. In particular, matrices are revisited as the representation of a linear map. In the notion of a subspace, the fundamental concept of a basis for a subspace and the definition of dimension will be introduced. We furthermore introduce the concept of eigenvalues and eigenvectors and methods to tackle systems of differential equations. We conclude this module by discussing the behaviour of dynamical systems.

Cell Biology – 3EC: This course aims at introducing the basics of cell biology to students with a limited to moderate knowledge of biology and biochemistry. The course can be followed as a follow-up on high school level biology. The students are encouraged to complete a course related to biochemistry first, however this is not a prerequisite. This course aims to offer students affinity with cell biology at such level that it benefits future enrolment in applied cell biology related courses in for example the master Biomedical Engineering.

Experimental design and data analysis – 3EC: This course introduces you to 'best practices' in setting up an experiment to investigate a natural phenomenon. In a hands-on setting, you are stimulated to think about the two-way interaction between experimental design and available measurement and processing techniques, and about how to deal with uncertainties in your data (collection). Several standard data processing and analysis techniques are measured. You are encouraged to bring in your own topics (in the natural sciences) for experimental study.

Data Visualisation – 3EC: This course is about putting your data in graphs & maps to discover patterns and communicate your findings. We will try to reach these learning goals, by learning (studying theory and examples), discussing (critically looking at existing work, finding strengths & weaknesses and developing alternatives) and also to a large extent doing (visualisation challenges using sketching, prototyping, digital drawing and/or programming, depending on your interests and skills). Each student will work on a small portfolio, with one final visualisation assignment as a "master proof."

Lasers – 3EC: This is an elective course for students who are interested in general concepts, background theory, laser dynamics and types, laser design and ultimately fiber laser applications. The topics to be covered are: Fundamentals of lasers: history, concepts, materials. Laser safety and types of lasers. Theory and background: Schrodingers wave equation, Einsteins rate equations, basic math. Rare earth-doped fibre lasers: Nd, Yb, Pr, Er, Tm Ho -doped and its applications. Design of a laser application in: science, medicine, telecommunications, material processing.

Intercultural Communication – 3EC: This course aims at introducing students to the most relevant theories, concepts, and principles of intercultural communication. Factors inhibiting effective cross-cultural encounters and socially relevant issues attracting widespread debate such as immigration and acculturation will be discussed. The course will primarily have interactive plenary lectures and several non-lecture activities (film viewing, panel interviews). For this elective, students are expected to write an exposition paper on the culture of the country they are going to for the study exchange.

Philosophy of Technology Lab – 3EC: The Philosophy of Technology Lab aims to introduce ATLAS students to ethical and philosophical reflection on disruptive technologies. Artificial intelligence, robotics, geoengineering, nanomedicine, synthetic biology, and neurotechnology are examples of technologies that have the potential to transform the cultural, social, and economic dimensions of our everyday lives as well as to contribute in solving world challenges such as climate change and the extinction of biodiversity. Despite their potential, disruptive technologies pose complex questions that require ethical reflection. Traditional notions such as natural and artificial, as well as the boundaries of safety and surveillance, freedom and responsibility, are rapidly shifting along with the development and transformation of these technologies. By the end of this course, students will be able to better understand the impact of disruptive technologies and envision ways for innovation that contributes to a future worth wanting.

Philosophy of science and education – 3EC

This interdisciplinary course aims at better understanding of science and the engineering sciences. Starting from what is science? And what is 'knowledge'? What are the necessary skills (Higher-order Thinking skills) needed to have higher-order understanding of scientific knowledge across disciplines? We will explore these interrelated concepts and their interplays in reality through the lenses of Philosophy of Science and Learning sciences. Related to these questions we will discuss several topics from philosophy of science and learning sciences such as "what is a scientific explanation?", "what are laws of nature?", "what is a scientific model", "what is learning?", "what is education?", "How knowledge is taught and/ or acquired?", "What do cognition and metacognition mean?", "What does higher-order learning and thinking mean?". Other topics are: "what is a scientific methodology in the engineering sciences and educational sciences?", "What is the role of experiments in scientific research?"

The HTHT minors fit well in the ATLAS profile. For more information check:

<https://www.utwente.nl/en/education/electives/minor/offer/htht-minors/>

UT Course Catalogue

<https://osiris.utwente.nl/student/OnderwijsCatalogusZoekCursus.do>

HOUSING

In order to find housing students can register on www.roomspot.nl/en. Roomspot.nl offers students a comprehensive and reliable overview of the available accommodation in the area of Enschede.

HOW TO APPLY

DEADLINE OF APPLICATION: 15 OCTOBER 2021

Interested University College students can indicate their choice to follow courses at UCT by submitting the inter UC Exchange application form to the Exchange officer by the given deadline. For information about the application procedure, please refer to www.universitycolleges.info

Tuition fees or other (administrative) fees do not apply. Possible extra costs incurred through this exchange are the student's responsibility. There are no scholarships attached to this exchange.

GOOD TO KNOW

SELF DIRECTED LEARNING

Self-Directed Learning. The key to UCT education is self-directed learning in which students design their own learning plan. This consists of a Personal Development Plan in which learning goals are formulated and learning activities identified to reach those goals. As an exchange student within UCT, you will also shape your sojourn in Twente as a self-directed learning activity.

Sample of Spring electives at other UT programs open to ATLAS students:

- Intro to Psychology (5EC, Pre-M Psychology)
- Theory Traffic and Transport (5EC, B-Civil Engineering)
- Economic Assessment (2EC, B-Civil Engineering)
- Stakeholder Analysis (2EC, B-Civil Engineering)
- Spatial Policy and Law (2EC, B-Civil Engineering)
- Intro to Finite Element Method (3.5EC, B-Mechanical Engineering)
- Innovation & Entrepreneurship (7EC, B-Creative Technology)
- Empirical Research Methods (4EC, B-Creative Technology)
- Acting Responsibly (3.5EC, B-Creative Technology)
- Organic Chemistry (3EC, B-Advanced Technology)
- Quantum Matter (3EC, B-Advanced Technology)
- Organic Chemistry (3EC, B-Advanced Technology)
- Geophysics: Imaging the Unseen (7EC, M-GEO)

CONTACT

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