International Summer Program (ISP)

Track A: Engineering

Track B: Humanities

Research Projects

Course Catalog 2026

Your contacts for **organizational questions** are:

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For questions regarding **Track A** and **Research Projects** please contact:

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German Language Course

(Compulsory class for all tracks)

Lecturer(s)

N.N.

Time

08.06.2026 - 24.07.2026

Mondays	10:00 – 13:00
Wednesdays	16:00 – 19:00

Location

Mondays	tba
Wednesdays	tba

Course Description

For beginners of German we will offer the German A1.1 course. This class focuses on the introduction to the German language, simple oral and written communication, and basic German grammar. The following competences are imparted: Students who pass the course successfully will be able to provide information about themselves and their country of origin; to greet and to say goodbye; to talk about their family; to express their condition, preferences and resentments; to talk about their hobbies and leisure time; to make and understand time designations; to name prices and quantities; to name things of everyday life (groceries, furniture); to phrase simple questions; to talk about simple activities and events in the past tense.

The textbook ”Schritte plus: Deutsch als Fremdsprache” (1 through 6 according to the course level) will be used in class.

Credits

The German language course meets twice a week throughout the 7 weeks of the lecture period. This corresponds to 4.5 ECTS credit points or 3 credit hours.

Exam

There will be a final written or oral exam.

Website

https://cms.zhb.tu-dortmund.de/fs2/Anmeldung/index.php#kurscontent

Germany – Politics, Culture and Society

(Compulsory Class for Tracks A, Elective Class for Track B)

Lecturer(s)

Iris-Aya Laemmerhirt

Time

Saturday, 04.07.26, 9 am – 6 pm
Sunday, 05.07.26, 9 am – 6 pm

Location

Emil-Figge-Straße 50, Room 0.406

Course Materials

Information regarding the organization of the course and course materials can be found in the Moodle Classroom (online learning platform)/Website.

Course Goal(s)

The German culture course "Germany – Politics, Culture and Society" is designed to introduce students to Germany's cultural landscapes and political life. You will gain insights into your host country's past and present and will be encouraged to contribute your own first-hand experiences to class discussions.

Course Description

The compact seminar covers the following topics:

- General introduction to Germany
- Topic specific workshops on German politics (including short student presentations)
- German history before and after World War II, including reunification (the material includes nonfiction, historical texts and visual material)
- German literature (short overview and some examples)
- German culture (including German food culture, sports, music)
- Migration in Germany: introduction to the topic; discussion of migration including a contemporary German film on the topic
- The Ruhr Area (focus on this specific region, its history and culture)

This course is a mandatory seminar for students who take classes exclusively from Track A – Engineering. If you attend classes from Track B – German and European Studies, you may choose whether to take part in this course. You will meet on two separate days at the beginning and at the end of the program for one day of compact seminar each.

Requirements

Interest in Germany.

Credits

The course will be taught 2 hours/week over a partial semester. This corresponds to 1 credit hour(s) for a regular semester or 1.5 ECTS credits.

Part I:
Track A – Engineering

Section 1: Biochemical and Chemical Engineering

1.1. Dynamic Simulation

Lecturer(s)

Prof. Dr. Hannsjörg Freund

Time

Mondays 15:00 – 18:00

Location

CT Zentralbereich – PC-Pool 1

Course Goal(s)

The aim of the course is that the student obtains an understanding how dynamic process simulators work and is able to formulate, solve and analyze problems in advanced dynamic process simulators.

Lecture Content

The course dynamic simulation teaches the theoretical and practical use of advanced dynamic process simulators. The software used is gPROMS, a commercial equation-oriented modeling and optimization framework, which is widely used in the chemical industry. In order to teach the students the handling and implementation in gPROMS, the following topics are dealt with:

- Basics of numerical mathematics:
    - Types of dynamic systems
    - Numerical stability
    - Numerical solution of ODEs
- Basics of gPROMS
    - Implementation of basic models
    - Solving basic models in gPROMS
- Object oriented programming in gPROMS
    - Theory of object oriented programming
    - Realization in gPROMS
- Logical conditions and scheduling in gPROMS
- Numerical solutions of partial differential equations
    - Discretization methods
    - Initial and boundary conditions
- Implementation of partial differential equations in gPROMS
- Dynamic optimization
    - Basics of optimization theory
    - Solving of dynamic optimization problems
    - Dynamic optimization of chemical processes in gPROMS

Requirements

The students should be able to derive models of chemical processes and to understand given process models.

Credits

The course will be taught 3 hours/week over a partial semester. This corresponds to 1.5 credit hour(s) for a regular semester or 1.5 ECTS credits.

Exam

Written (computer-based) or oral exam.

Website

https://rec.bci.tu-dortmund.de/lehre/lehrveranstaltungen/sommersemester-2024/dynamic-simulation/

Moodle Classroom (online learning platform)

https://moodle.tu-dortmund.de/course/view.php?id=51418

1.2. Drops, Bubbles and Films

Lecturer(s)

Prof. Dr.-Ing. Norbert Kockmann

Time

Wednesdays	10:00 – 14:00
Single Appointment:	tba

Location

Wednesdays:	CT G3 5.25
Single Appointment:	tba

Course Goal(s)

Methods of generation, application and basics of discrete multiphase systems

Lecture Content

Basics and multiple methods of drops and bubbles formation in liquid/gas and liquid/liquid systems, atomization and gas dispersing systems, application of spray processes. Basics of forming, behavior and application of liquid films. Measurement methods to characterize these systems.

Requirements

Basic knowledge in Fluid Mechanics.

Tutorials

Calculation of typical applications in process engineering.

Laboratory

Demonstration of capillary flow and two phase columns.

Credits

The course will be taught 4 hours/week over a partial semester. This corresponds to 2 credit hour(s) for a regular semester or 3 ECTS credits.

Exam

Written exam.

Recommended Reading

All slides presented, will be given to attendants of the course together with recommendations of the literature.

Website

https://ad.bci.tu-dortmund.de/teaching/lectures-and-exercises/summer-term/bubbles-and-drops-in-chemical-and-biochemical-processes/

Moodle Classroom (online learning platform)

https://moodle.tu-dortmund.de/course/view.php?id=35456

1.3. Essentials of Micro Process Engineering

Lecturer(s)

Prof. Dr.-Ing. Norbert Kockmann

Time

Thursdays 12:00 – 15:30

Location

CT G3 5.25

Lecture Content

Micro-structured apparatuses allow intensified processes with excellent heat transfer, fast mixing and continuous process control. Applications in chemistry, analytics, process engineering and energy technology are covered. Special attention is given to single-phase and multi-phase flows, micromixers, mass and heat transfer, micro heat exchangers, microcontactors, chemical reactions, micro-reactors, continuous production processes and various applications. Manufacturing and design, application, laboratory and miniplant equipment, process intensification.

Requirements

Basic knowledge in Fluid Mechanics.

Credits

The course will be taught 4 hours/week over a partial semester. This corresponds to 2 credit hour(s) for a regular semester or 3 ECTS credits.

Exam

Written or oral final exam.

Recommended Reading

All slides presented, will be given to attendants of the course together with recommendations of the literature.

Website

https://ad.bci.tu-dortmund.de/teaching/lectures-and-exercises/summer-term/essentials-of-micro-process-engineering/

Moodle Classroom (online learning platform)

https://moodle.tu-dortmund.de/course/view.php?id=19807

1.4. Fundamentals of Synthetic Biology

Lecturer(s)

Prof. Dr. Markus Nett

Time

Tuesdays 16:00 – 18:00

+ 7*2 hours of recorded videos

Location

CT G1 6.15

Lecture Content

Synthetic biology is a young scientific field that seeks to rationally engineer biological systems using approaches and methods common to well established engineering disciplines. In the last 15 years, researchers turned genes and other genetic elements into programmable parts with predictable functions. With these parts, it has become possible to create complex genetic systems that are capable of a wide range of tasks: from the production of sustainable food, fuel and therapeutic drugs to the development of medical diagnostics and treatment tools. This course introduces the basic concepts and techniques of synthetic biology.

When the ISP begins, already 7 lectures will be hold. However, they are recorded and posted online, so you will be able to watch them during or prior to the ISP. The topics are separated from each other, so they are not relevant for later lectures.

Requirements

Basic knowledge of genetic and biotechnological engineering.

Credits

The course will be taught 2 hours/week over a full semester. This corresponds to 3 ECTS credits.

Exam

Written

Moodle Classroom (online learning platform)

https://moodle.tu-dortmund.de/enrol/index.php?id=51112

Important Note

When you are interested in catching up on the recorded lectures (7*2 hours) before the start of the ISP, please reach out to the Track A contacts Hilde Gerold or Lukas Lüken (overseas.bci@tu-dortmund.de)

Section 2: Automation and Robotics

2.1. Data-Based Dynamic Modeling

Lecturer(s)

Prof. Dr. Sergio Lucia Gil

Time

Lecture	Wednesdays	10:00 – 12:00
Tutorial	Thursdays	15:45 – 17:15

Location

Wednesdays	CT Zentralbereich – HS ZE02
Thursdays	CT Zentralbereich – SR ZE 07/PC Pool 3

Lecture Content

Identification of simple models from step responses. Parameter identification: Basic idea, mathematical description of sampled systems, AXR, ARMAX and OE estimation. Modeling using nonlinear black box models (perceptron neural nets, radial-basis-function nets), training. Structures of dynamic nonlinear black box models, quality of neural net models. Model errors: Sources of errors, limits of model accuracy, model accuracy and controller performance.

Requirements

The students should know basic concept of the Laplace-transformation and transfer functions.

Learning Goals

The students can identify the dominant dynamics of a process from step responses and can apply modern methods and algorithms to identify the parameters of linear process models from measured data. They understand the concept of sufficient excitation and the sources of errors in parameter estimation. The students understand the structure of nonlinear black box models and can judge the quality and the limitations of data-based models.

Tutorials

The lectures are supported by tutorials, in which the concepts are applied. Some of the tutorials are computer-based and are carried out in a computer lab. The tutorial contents are listed below:

- Step response identification
- Computer lab: step response identification (Optimization-based step response identification (with MATLAB))
- Discrete-time systems / z-Transform
- Computer lab: ARX parameter estimation (with MATLAB)
- Computer lab: prediction error methods (with MATLAB)
- Computer lab: Subspace Identification
- Computer lab: Non-linear black box modeling

Credits

The course will be taught 4 hours/week over a partial semester. This corresponds to 2 credit hour(s) for a regular semester or 2.5 ECTS credits.

Exam

The students are graded with one written exam.

Recommended Literature:

- "System Identification: Theory for the User" by Lennart Ljung
- "Filtering and System Identification: A Least Squares Approach" by Michel Verhaegen and Vincent Verdult

Website

https://pas.bci.tu-dortmund.de/teaching/teaching-offer/data-based-dynamic-modeling/

Moodle Classroom (online learning platform)

https://moodle.tu-dortmund.de/course/view.php?id=51193

2.2. Controller Design Fundamentals

Lecturer(s)

Prof. Dr.-Ing. Sebastian Engell

Time

Lecture:	Tuesdays	16:00 – 18:00
Tutorial:	Fridays	14:00 – 16:00

Location

Lecture:	HGII HS4
Tutorial:	CT PC-Pool 1

Lecture Content

- Basic tools for the analysis and design of control systems: Stability definitions, frequency response, Nyquist criterion.
- SISO controller design: Relations of time domain and frequency domain responses, controller types, tuning rules for P/I/D-controllers, loop shaping, robustness.
- Stability criteria for feedback systems with static nonlinearities.

Course Goal(s)

The students are able to analyze and to solve industrial single loop controller design problems for plants with predominantly linear dynamics. The students understand the basic trade-offs and limitations of controller performance and are able to choose a suitable controllers and to design them for given process dynamics as well as to analyze the reasons for controller malfunctions.

Requirements

Basic knowledge in single loop controller design for plants with linear dynamics. The concepts of transfer functions should be known.

Credits

The course will be taught 4 hours/week over a partial semester. This corresponds to 2 credit hour(s) for a regular semester or 2.5 ECTS credits.

Exam

Written or oral exam.

Website

https://pas.bci.tu-dortmund.de/teaching/teaching-offer/controller-design-fundamentals/

Moodle Classroom (online learning platform)

https://moodle.tu-dortmund.de/enrol/index.php?id=52973

2.3. Machine Learning Methods for Engineers

Lecturer(s)

Prof. Dr. Sergio Lucia Gil

Time

Monday	14:00-16:00

Location

CT Zentralbereich HS-ZE 02

Lecture Content

Description of the main challenges that arise when dealing with large data sets and presentations of different possibilities for data management, data cleaning and outlier detection. Basic definitions in artificial intelligence and machine learning: training, validation, backpropagation, loss functions, error metrics. Description of different machine learning-methods (logistic regression, clustering, neural networks, ...) and their classification into different categories such as supervised vs. unsupervised, regression vs. classification. Usage of tools to efficiently implement machine learning-methods. Interpretation and analysis of the results and presentation of the potential of machine learning with examples of the chemical and biochemical engineering field.

The course consists of a lecture that begins at the start of the semester and a group project that begins in the second half of the semester. The lecture can be taken independently of the group project. The project can only be taken in combination with the

lecture. By the time the ISP begins, seven lectures will already have been held. However, they are recorded and posted online, so you will be able to watch them before or during the ISP.

Course Goal(s)

The students can analyze the quality of data sets and perform simple operations to clean and prepare the data for the application of different machine learning techniques. The students are able to design and apply several AI techniques using efficient software tools and they are able to transfer this knowledge to solve practical problems. The students can recognize reliable results from the application of the presented machine learning techniques and critically evaluate their limitations.

Exam

The lecture is graded based on one written exam. The group project is graded based on a report and short presentation of the entire group.

Credits

The lecture will be taught 2 hours/week over an entire semester. This corresponds to 2 credit hour(s) or 2.5 ECTS credits. The groups project is additionally assigned with 2 credit hour(s) or 2.5 ECTS credits.

Moodle Classroom (online learning platform)

tba

Important Note

When you are interested in catching up on the recorded lectures (7*1.5 hours) before the start of the ISP, please reach out to the Track A contacts Hilde Gerold or Lukas Lüken (overseas.bci@tu-dortmund.de). If you are interested in taking the group project, we recommend catching up on the lectures before the ISP starts or shortly after it begins.

Section 3: Applied Mathematics

3.1. Intensive Course in Statistics for Researchers in Engineering Sciences

Lecturer(s)

Prof. Dr. Paul-Christian Bürkner

Time

Lecture:	Wednesdays	12:00 – 14:00
	Thursdays	12:00 – 14:00
Tutorial:	Wednesdays	10:00 – 12:00

Location

Wednesdays (10:00-12:00)	CDI/ZHB – 121
Wednesdays (12:00-14:00) & Thursdays	Mathematik - E 27

Course Goal(s)

The course gives an introduction to statistical concepts that are useful for research projects in various fields of application and areas of science.

Lecture Content

The lecture is largely based on the book “Montgomery, D.C. and Runger, G.C. (2007): Applied Statistics and Probability for Engineers, 4th ed., Wiley, New York”.

Section 3:

Applied Mathematics

Table of contents:

1. Introduction (random experiments, random variables, sample space)
2. Empirical distributions and exploratory data analysis (frequency tables, bar charts, histograms, distribution characteristics)
3. Probability theory (probability, conditional probability, independence, total probability, Bayes rule)
4. Random variables and their distribution (discrete distributions (Uniform, Bernoulli, Binomial, Hypergeometric, Poisson), continuous distributions (Uniform, Normal), expectation and variance, sampling distribution theory, joint distributions, covariance and correlation
5. Estimation and confidence intervals (properties of estimators, Maximum Likelihood estimator, confidence intervals)
6. Hypothesis testing (Test of statistical hypotheses (Binomial test, Gaussian test, t-test, approximate tests), power, p-value)
7. Regression (simple / multiple regression, tests concerning regression)
8. Time series analysis (descriptive time series analysis (moving average, differencing), stationarity)

Requirements

Except for basic mathematical calculus no prior knowledge is necessary.

Tutorials and Laboratory

The tutorial will be used to practice the course material by solving statistical problems and to further discuss student questions. The statistical computer package R will be introduced for statistical programming and used by the students to analyze small data sets. This includes theoretical tutorials and software labs.

Exam

Written or oral exam.

Credits

The lecture/tutorial will be taught 6 hours/week over a partial semester. This corresponds to 3 credit hour(s) for a regular semester or to 5 ECTS credits.

Recommended Reading

Basics of Probability and Statistics:

- Bain, L.J., Engelhardt, M. (1992): Introduction to Probability and Statistics, Duxbury Press, Pacific Grove.
- Montgomery, D.C. and Runger, G.C. (2007): Applied Statistics and Probability for Engineers, 4th ed., Wiley, New York.
- Fahrmeir, Künstler, Pigeot, and Tutz (2007) Statistik (6th ed.) (in German).

Basics of R:

- Dalgaard, P. (2008): Introductory Statistics with R, 2nd ed., Springer, New York.

- Venables, W.N. and Ripley, B.D. (2002): Modern Applied Statistics with S, 4th ed., Springer, New York.

Moodle Classroom (online learning platform)

https://moodle.tu-dortmund.de/enrol/index.php?id=51996

3.2. Generalized Linear Models

Lecturer(s)

Prof. Dr. Andreas Groll

Time

Tutorial:	tba	
Q&A session:	Wednesdays	12:00 – 13:00

+ 2 lecture videos per week

+ 7*2 lecture videos before the ISP starts

Location

Tutorial:	tba	
Q&A session:	Wednesdays	CT ZE – HS ZE01

Course Goal(s)

The course extends the methods for linear models to the general case of response distributions from the exponential family, such as e.g. Bernoulli or Poisson. In particular, the generalized linear model with the special cases logistic regression, Poisson regression and the log-linear model as well as models with random effects are addressed. Additionally, categorical regression and the modeling of non-linear effects via spline approaches are addressed. Moreover, basic approaches for variable selection via penalization techniques, as well as semi-und non-parametric regression models are introduced.

The lecture will be given in an inverted classroom-style. Every week, 2 lecture videos will be uploaded in Moodle and each Wednesdays, from 12-13 am, there will be a Q&A session on those videos in lecture room CT/ZE 01 (BCI-Building in front of HG II).

When the ISP begins, already 7*2 lecture videos will be uploaded, so you will be able to watch them during or prior to the ISP.

Requirements

The following prerequisites are recommended:

- Linear models
- Basic knowledge in regression modeling

Lecture Content

- Fahrmeir, L., Kneib, T., Lang, S., & Marx, B. (2013). Regression - Models, Methods and Applications. Springer, Berlin, Heidelberg.
- Fahrmeir, Tutz (2013): Multivariate statistical modelling based on generalized linear models. Springer Science & Business Media.
- Tutz (2011): Regression for categorical data. Cambridge University Press

Exam

The students are graded with one written exam.

Credits

The course will be taught 4+2 hours/week over a full semester. This corresponds to 9 ECTS credits.

Important Note

When you are interested in catching up on the recorded lectures (7*2 lecture videos) before the ISP starts, please use your TU Dortmund University account to sign in to the Moodle-Page, where you can find them. If you face any problems, please reach out to the Track A contacts Hilde Gerold or Lukas Lüken (overseas.bci@tu-dortmund.de)

Moodle Classroom (online learning platform)

tba

Part II:
Track B – Humanities

Section 4: Humanities

4.1. Theories of Literature, Culture, Media

Lecturer(s)

Sascha Pöhlmann

Time

tba

Location

Emil-Figge-Straße 50 – classroom tba

Course Description

The seminar focuses on a selection of the most important texts of literary, cultural, and media theory of the twentieth and twenty-first century. We will introduce a different topic each week to cover as many perspectives as possible—from poststructuralism to queer theory, from ethnicity to remediation. Our critical discussion of these demanding texts will be tied to concrete methodological issues in order to show what it means to put these theories to use. All texts will be provided as a reader.

Credits

3 ECTS will be awarded on the basis of group work and short written assignments.

Moodle Classroom (online learning platform)

tba

Website

tba

Sascha Pöhlmann teaches American Literature and Culture at TUD, specializing in contemporary fiction, nineteenth-century poetry, and video games (among other things). He is particularly interested in the connection between aesthetics and politics, especially in terms of an unpopular culture that seeks to counteract a populist imagination.

4.2. Abyssal Fiction in Literature and Video Games

Lecturer(s)

Burak Sezer

Time

Mondays 16:00 – 19:30

Location

Emil-Figge-Straße 50 - 0.406

Course Description

This seminar will focus on the poetics and aesthetics of the abyss as depicted in both literature and video games. Throughout centuries, the concept of the abyss underwent meaningful transformations: it commonly denoted the bottomless depth of space in oceanic and mountainous regions, and also invoked what is now often referred to "slums" in 19th century cityscapes, all the wile retaining its associations with the Biblical notion of "hell." We will read Jack London's *The People of the Abyss,* in addition to selected short stories or excerpts by Dante Alighieri, Edgar Allan Poe, H. P. Lovecraft, H. G. Wells, John Wyndham, and Mira Grant. We will also dive into different abysses in video games.

Credits

3 ECTS will be awarded on the basis of group work and short written assignments.

Moodle Classroom (online learning platform)

tba

Website

https://anglistik.kuwi.tu-dortmund.de/sezer/

Burak Sezer is assistant professor of American Literature and Culture at the TU Dortmund. His fields of interest include weird and punk fiction, science fiction, environmental humanities, and 19th century American literature. He is also interested in video games.

4.3. Walking Biographical Interviews: Advanced Studies in Biographical Research

Lecturer(s)

Holly Patch

Time

Wednesdays: June 10, June 17, June 24, July 1, July 8, July 15, July 22 from 10:00 am - 1:00 pm

Location

tba

Course Description

In this advanced seminar on biographical research, students will deepen their understanding of how social structures and historical processes contextualize and help shape individual lives and collective experiences. Discussing methodological approaches and empirical studies, students will learn about how life histories are (re)constructed and narrated. Students will actively engage with the method of "walking biographies," and this research-based learning will serve as the foundation for the short essay.

Credits

4 ECTS points will be awarded for active participation, and 2 additional ECTS points will be awarded for completing a short essay.

Moodle

tba

Website

tba

Dr. Holly Patch is a postdoctoral research associate at the professorship of Sociology of Gender Relations. She teaches life course and biographical research, qualitative methods in social science research, and an array of gender studies classes with focuses on queer and trans* studies, temporalities, and music.

4.4. Coffee & Cafés – A Beverage & Its Cultural Impact

Lecturer

Bernd Eßmann

Time

June 11 – July 23, Thursdays 10am - 2pm

Location

Emil-Figge-Straße 50, classroom 0.420

Course Description

Coffee is a ubiquitous beverage that we usually take for granted without reflecting on the impact it has on our culture(s). We will take a closer look at it, specifically the places that it is frequently – & publicly – consumed in, the cafes. Be those traditional cafes (the coffeehouses in Vienna come to mind) or rather recent developments such as Starbucks. In this course we will try to find out their function in our culture(s), to find out whether cafes are, as Ray Oldenburg puts it, "hangouts at the heart of a community". For this we will take a look at the US and Germany, but especially also the perspective of the International Summer Program participants will give us valuable insights.

Credits

3 ECTS for active participation in class which includes a short presentation and a short essay.

Moodle Classroom (online learning platform)

tba

Website

tba

Bernd Eßmann teaches with a focus on popular culture (such as music, crime fiction or TV series) as well as practices of everyday life (like coffee & cafés or the effect of modes of mobility).

4.5. Social Cohesion, Autonomy, and Citizenship

Lecturer(s)

Nora Becker

Time

Mondays: 2pm – 6pm

Location

Emil-Figge-Str. 50, room 2.323

Course Description

Social cohesion, autonomy, and citizenship lie at the heart of liberal societies, are closely intertwined and worth a closer look. We will explore various concepts of it, theory-based and in depth, followed by a normative and an applied angle. The core idea of the seminar is to bring in the different perspectives of the participants and to discuss the concepts, theoretically grounded and context-related. What does social cohesion mean? What are pros and cons of autonomy? Who is a citizen, and what constitutes a 'good' one?

Credits

3 ECTS for active participation in class, including a short (group) presentation.

Additional 3 ECTS possible for a written paper.

Moodle Classroom (online learning platform)

tba

Website

tba

Nora Becker is a postdoctoral researcher at the Department of Philosophy and Political Science, teaching mainly in the field of Political Theory and Philosophy of Science including methods of academic working. She loves to examine socially relevant topics of our time from a theoretical perspective – for example, privacy, social cohesion, or loneliness.

4.6. Conceptualizing the Cyborg in Theory and Fiction

Lecturer(s)

Katrin Röder

Time

Wednesday 08:30 – 11:45 am

Location

Emil-Figge-Straße 50, classroom 3.205

Course Description

This course explores the figure of the cyborg as a central metaphor for understanding the intersections of technology, embodiment and questions of gendered 'identity' and dis/ability in British literary and cultural contexts. From early speculative narratives to contemporary digital imaginaries, students will examine how cyborgs challenge conventional boundaries between human and machine, nature and culture as well as binary conceptions of masculinity and femininity and ability and disability. Drawing on key theoretical frameworks—including posthumanism, feminist technoscience, and media theory—the course investigates how British fiction engages with questions of agency, ethics, and hybridity in an increasingly technologized world. Through critical reading, discussion, and analysis of selected texts from literature, film, and visual culture, participants will develop nuanced perspectives on how cyborgs

reconfigure our notions of subjectivity, embodiment, agency and society.

Credits

3 ECTS will be awarded on the basis of group work and short written assignments.

Moodle Classroom (online learning platform)

tba

Website

https://islk.kuwi.tu-dortmund.de/roeder/

Katrin Röder teaches English Literature at TU Dortmund University. Her research areas include early modern and 18th-century literature and culture, affect studies, gender studies, critical disability studies, ethical criticism and contemporary anglophone life storying.

Section 5: Business and Entrepreneurship

5.1. Business Model Innovation

Lecturer(s)

Prof. Dr. Tessa Flatten

Theresa Mentzel

Time

02.06.2026:	14:00-16:00
16.06.2026:	14:00-18:00
23.06.2026:	14:00-16:00
14.07.2026:	14:00 -18:00

Location

tba

Course Content

In the bachelor seminar Business Model Innovation students get to know the process of business development. In addition to the theoretical teaching of tools for the identification of business ideas, the focus is on practical application. Students develop their own business ideas in teams using the Business Model Canvas and present their results in a final presentation designed to convince potential investors of your idea.

Credits

The course will be taught 8 hours/week over a partial semester. This corresponds to 4 credit hour(s) for a regular semester or 7.5 ECTS credits.

Important Note

As the first session will take place before the ISP begins, the information will be made be available afterwards.

Website

https://tie.wiwi.tu-dortmund.de/en/teaching/summer-term/bmi/

Part III:
Research Projects

Section 6: Research Projects

6.1. Research Projects

Time

Depending on the available capacities and the student's preferences the research projects are usually scheduled between 15 and 30 h/week.

Description

The research project at the ISP is an opportunity for students to get first-hand experience of the scientific work at TU Dortmund University. Based on their interest, the academic coordinators will look for suitable supervisors for each student individually.

The work of the students will most likely be then closely tied to the research area of their supervisor and can be both lab-based and/or computer-based. The ISP applicants can fill their fields of interest, their skills and qualifications to perform research (e.g. lab skills for a lab project, programming skills for a computer-based project, biology courses for a project in biology), as well as the desired weekly workload in the relevant section in the application form to help the academic coordinators find a suitable topic. There are no specific requires, but to contribute meaningfully to the supervisor's research, a base level of familiarity with the area is advisable.

Looking at the websites of different chairs of the faculties of TU Dortmund University will give the best insights on what topics to expect, when one is interested in research regarding a specific field (e.g. automation).

Previous Research Projects

Below you find exemplarily some titles of previous research projects:

- CFD simulation of flow-, temperature- and concentration fields in the boundary layer of a planar, porous plate for different porosities
- Investigation of the behavior of the rotary joints used in a Continuous Centrifugal Extraction (CCE) system and its influence on the extraction media
- Molecular networking analysis of the Myxococcus xanthus metabolome
- Optimization-based control of a continuous stirred tank reactor using neural network controllers

Contact(s)

For questions regarding research projects, please contact:

overseas.bci@tu-dortmund.de

Examination

The research project is assessed by submitting a final report and giving a presentation, or by one of the two examination forms.

Credits

The amount of credit points or ECTS depends on the scope of the research project and correlates to the number of hours spend (0.75 ECTS correspond to 1 h/week) and is determined by the supervisor.

Section 6:

Research Projects

Websites

Please familiarize yourself with the different research areas within the biochemical- and chemical engineering department (BCI):

https://bci.tu-dortmund.de/en/professorships/laboratories/

or the research areas of other faculties at TU Dortmund University:

https://www.tu-dortmund.de/en/university/departments/.

Important Note

Interest in a research topic must be indicated when applying to the ISP, as advance preparation time is necessary. The research project section in the application form requires you to specify a research area of interest, describe any previous research experience, and submit a motivation letter.

Please note that we cannot guarantee a research project to all interested applicants, as placement depends on faculty capacity and the availability of appropriate supervision.